JANUARY, 1934

COTTON

Serving the

TEXTILE INDUSTRIES

Happy New Year
EXTENDING TO OUR MANY FRIENDS IN THE TEXTILE INDUSTRY SINCERE WISHES FOR A BRIGHT, PROSPEROUS AND HAPPY 1934.
Robert C. Boger
PRESIDENT
BOGER & CRAWFORD
PHILADELPHIA

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What INCREASED LABOR COST

WHAT are you going to do about it?

● The illustration shows the approximate minimum of increased labor cost in textile mills since the advent of the N.R.A.

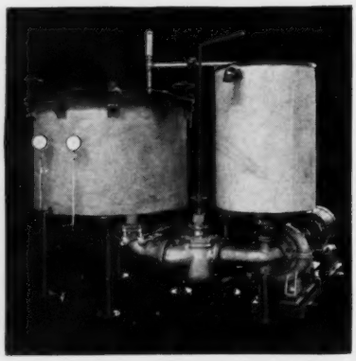
Since economic considerations make it impractical to pass all of this increased cost on to customers, maximum use of modern, high production, quality improving machinery becomes an absolute necessity. In other words manufacturers can absorb most of the extra labor cost and **still** make a profit **only** by increasing production without increasing labor hours and by decreasing costs in every other possible way.

To those not already using Franklin Process Package Dyeing this method offers most important production increasing and cost reducing possibilities, whether a mill operates its own dyeing department or patronizes a custom yarn dyeing service.

Assuming approximately continuous operation, a Franklin Process Package Dyeing Machine will ordinarily pay for itself within a year through reductions in the cost of labor, dyestuffs, steam and winding.

If colored yarn requirements do not warrant the installation of dyeing machinery (as is the case in the average mill). Franklin Process Custom Dyeing and Bleaching can still save money in many instances, due to winding economies that the Franklin Process effects, as compared with skeins and chain warps.

Franklin Process dyeing is now done in stainless metal machines (as well as in cast iron machines), — aluminum, stainless steel, or Monel. So it is possible with this method of dyeing, to minimize the losses from dirty and saddened colors, in addition to attaining the other economies mentioned.



Stainless Steel Package Dyeing Machine

You should learn more about this cost reducing opportunity. Write and state your problem and we will be glad to make recommendations, free of all obligations.

FRANKLIN PROCESS COMPANY

Yarn Merchants, Yarn Dyers and Mfrs. of Glazed Yarn. Also Builders of Package Yarn Dyeing Machines, Raw Stock Dyeing Machines, Top Dyeing Machines, Jackspool Yarn Dyeing Machines and Silk Soaking Machines. Main Office and Plant at Providence, R. I. Branch Plants at Philadelphia, Pa. Greenville, S. C. and Chattanooga, Tenn. New York Office, 40 Worth St.

FRANKLIN PROCESS

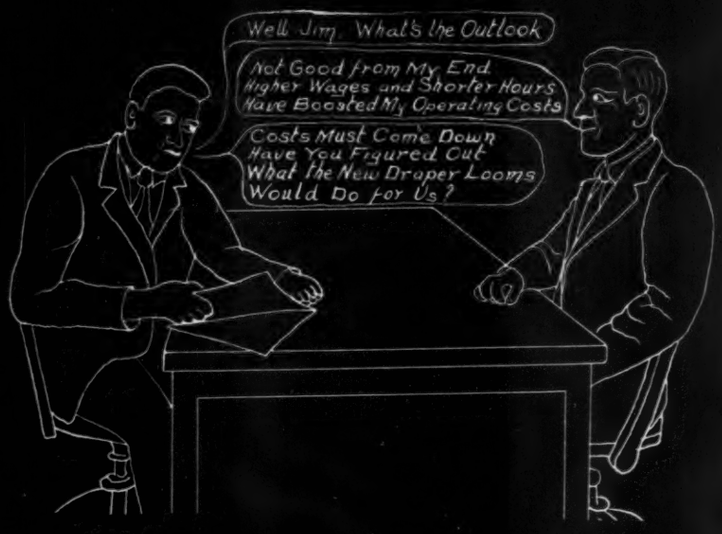
DYEING MACHINES AND CUSTOM YARN DYEING

COTTON is published monthly by W. R. C. Smith Publishing Co., Dalton and Atlanta, Ga. Subscription Rates, United States and Possessions, $1.00 for one year; $2.00 for three years; Canada, $1.50 per year; Foreign Countries, $2.00 per year. Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

The Old Fundamental Still Holds

You Can't Have A Profit

	INCOME
MINUS	COSTS
EQUAL	PROFITS


Well Jim, What's the Outlook
Not Good from My End. Higher Wages and Shorter Hours Have Boosted My Operating Costs
Costs Must Come Down Have You Figured Out What the New Draper Looms Would Do for Us?

Unless Costs Are Less Than Income

When the Treasurer Says

Selling Prices are Hard to Raise because Higher Prices Create Sales Resistance

And the Agent Says

Higher Wages and Shorter Working Hours Have Raised Costs

There is a Way Out

Replace Your Old Looms with Our New Ones
They Will Save You Money by Weaving More and Better Cloth

X Model Loom for Cottons

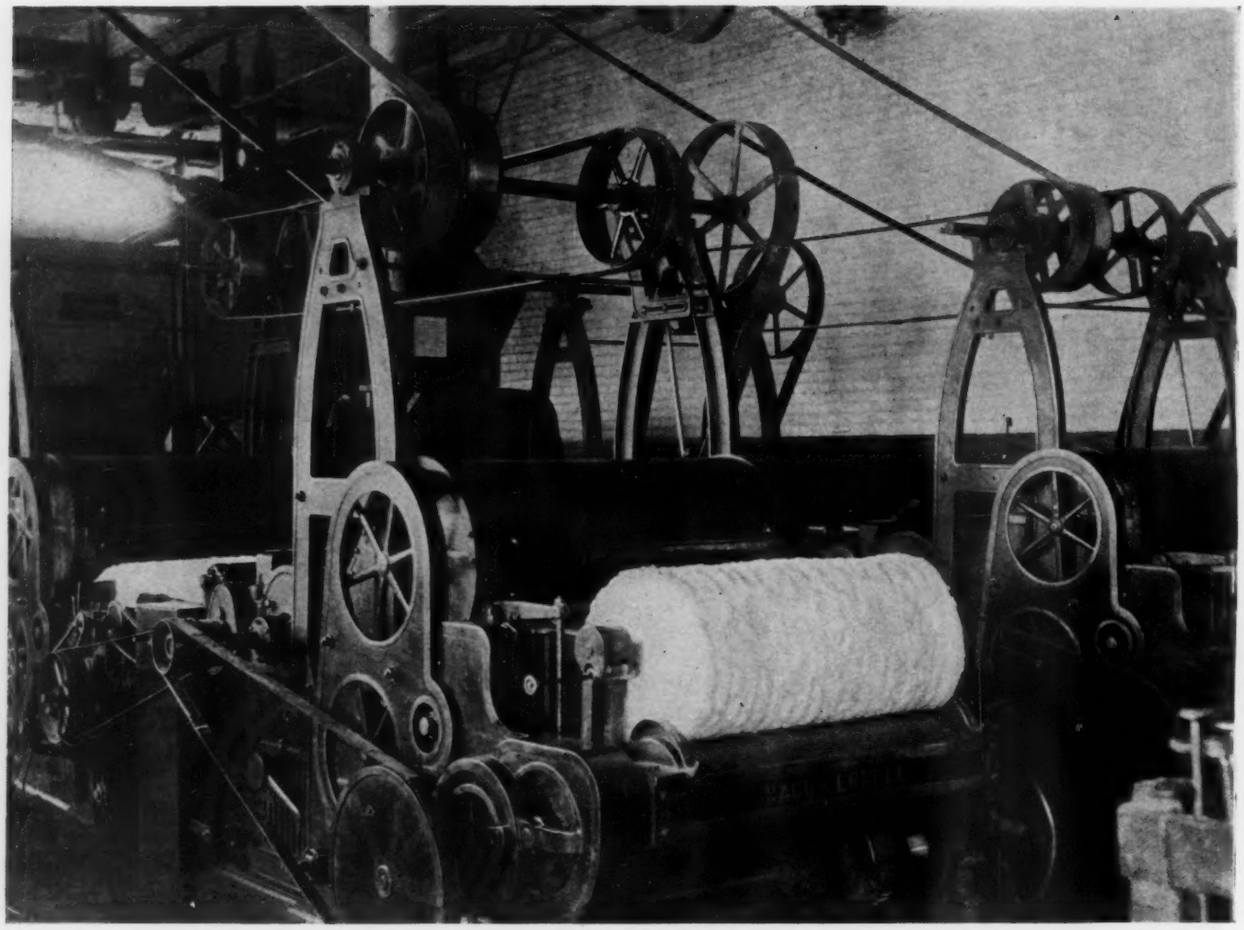
C Model Loom for Rayons

Reduce Weaving Costs—Increase Profits

DRAPER CORPORATION

Hopedale Massachusetts

Southern Offices Atlanta Ga and Spartanburg S C



An Aldrich Synchronized Single Process Picking Installation

Inexpensive, Simple, Fool-Proof; there is nothing to adjust; nothing to get out of order

It is the only system of single process picking which does not overload the evener on the finisher section, and this is the chief reason for its great superiority over all other systems.

Aldrich Synchronized Single Process Picking has been overwhelmingly chosen where it has been tested out side by side with other methods. In the two and one half years it has been on the market, more pickers have been changed to the Aldrich System than to any other system of single process picking.

Made and Installed by

ALDRICH MACHINE WORKS

Greenwood, South Carolina

SONOCO

ACHIEVES

microscopic perfection

IN A NEW

satin finish VELVET-SURFACE CONE

THIS new satin-like softness we have achieved in further development of our Velvet-Surface Cone is hardly visible to the naked eye—but in actual use has quickly proven its superiority. The finest silk and rayon yarns wind-on perfectly, and deliver smoothly and evenly to the last turn.

NOTE: Compare surfaces of three cones illustrated—Corrugated—Old Velvet Surface and New Velvet Surface.

In perfecting this New Surface two other important improvements were developed—a better, more uniform and absolutely smooth nose finish and a greatly superior mandrel—gripping surface inside.

SONOCO offers these recent developments in evidence of their continuous striving toward perfection in serving the Textile Industry. It pays to specify **SONOCO** Velvet-Surface CONES.

3°30'—12-E
for SILK *and*
RAYON YARN

NRA MEMBER U.S. WE DO OUR PART

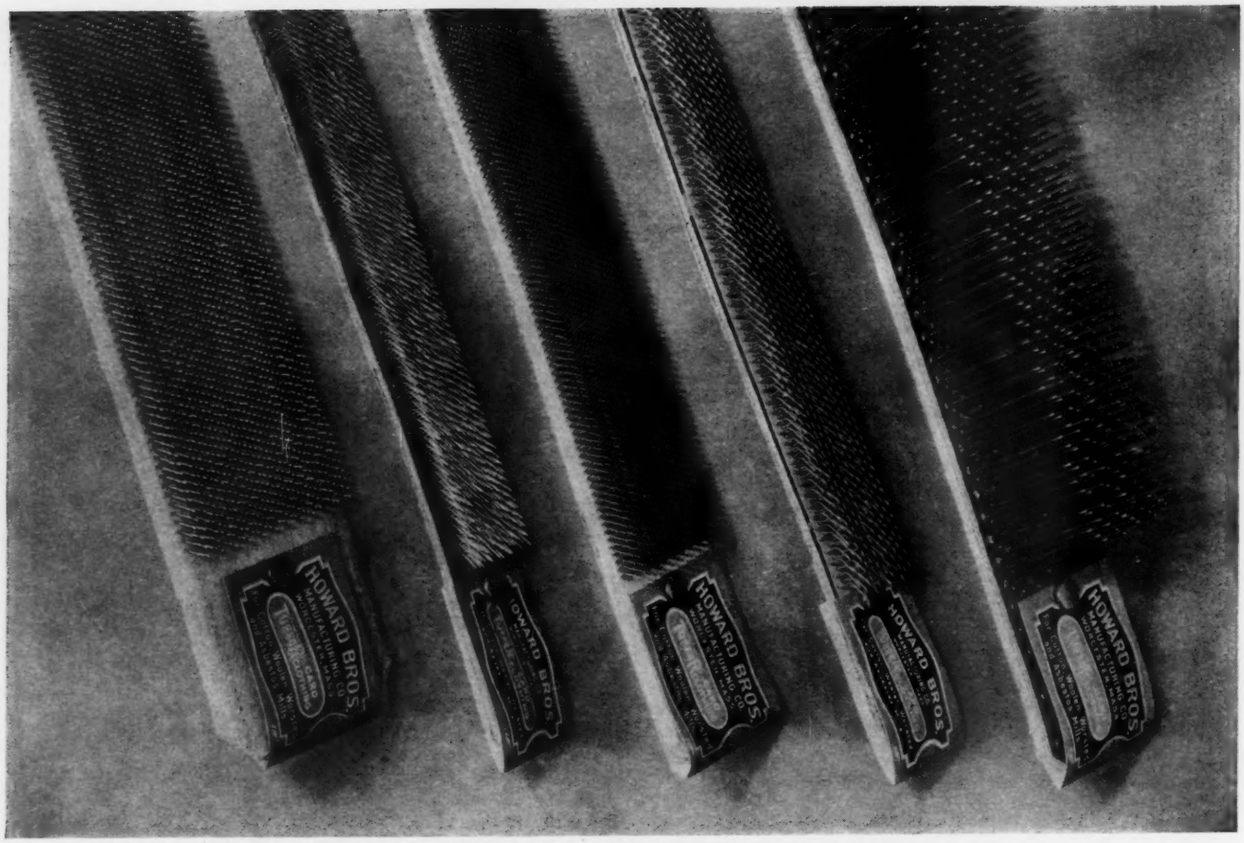
SONOCO PRODUCTS COMPANY

HARTSVILLE, SOUTH CAROLINA

BRANCH PLANTS
Rockingham, N. C.
Garwood, N. J.
Brantford, Ont.

MAIN PLANT and GENERAL OFFICES
Hartsville, S. C.

EASTERN SALES OFFICE
North Avenue
Garwood, N. J.



The Carder's Choice of CARD CLOTHING

To meet spinning and weaving specifications your carder wants the best tools he can secure. Card clothing can be his friend or his enemy, serviceable under all conditions, or a source of trouble. Howard Bros. have catered to your carder, by producing the famous Tuffer card clothing to best meet his requirements.

He wants a uniformly secure foundation. Tuffer foundation resists stretching, remains flexible and holds every individual wire in its proper place. We test and select all foundation fabrics, put them together ourselves under the most rigid standards. Even the glue is oil proof so that whatever you card can't transfer oil through the layers of the foundation and weaken it.

He wants wire of uniform temper and sharpness. Tuffer wire of the finest Swedish rods obtainable undergoes continuous tests before and after drawing.

Both your carder and ourselves appreciate the great importance of service. Howard Bros. representatives are trained and located at strategic textile centers to render immediate service on all carding problems.

TRADE MARK
TUFFER
REG. U.S. PAT. OFF.

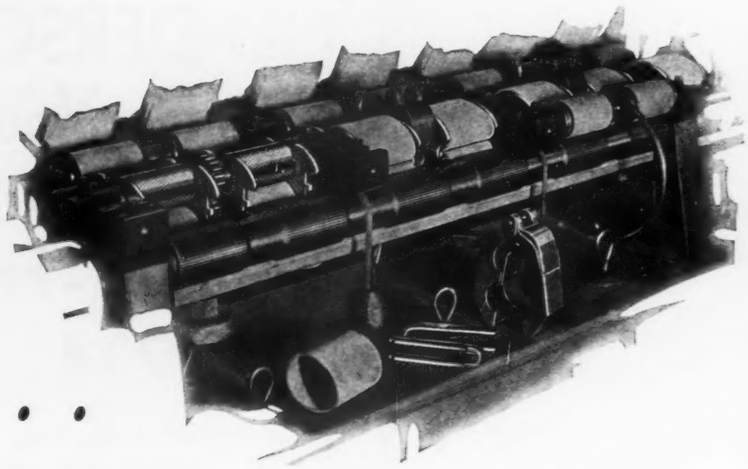
HOWARD BROS. MFG. COMPANY

Home Office and Factory: Worcester, Mass.

Southern Plant
244 Forsyth Street,
Atlanta, Ga.

Branch Offices
Philadelphia, Pa., Dallas,
Texas, and Washington, D. C.

Speaking of Pioneering . . .



• Did you know that Whitin has quietly and successfully perfected the only practical system of long drafting on Roving Machinery?

• Whatever the method used on Spinning Frames, only Whitin-Casablancas can give you equal opportunity to save in the card room.

• Did you know that large mills, including Canadian Cottons, Limited . . . Dwight Manufacturing Company . . . Utica & Mohawk Cotton Mills, Inc. . . . *are completely equipped* with Whitin-Casablancas on Roving Frames, while fifty other mills are partially equipped?

• There is no other DEVELOPED system of high drafting for roving.

• You can take advantage of it *now* . . . do not await the outcome of future experimental installations . . . your competitors are saving money TODAY!

• Take time to profit!

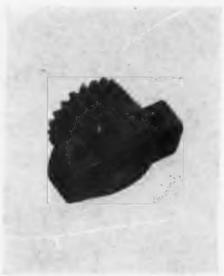
WHITIN MACHINE WORKS **WHITIN** WHITINSVILLE, MASS.

HENDERSON Wishes You a Prosperous, Trouble-Free 1934

— — and voices its deep appreciation of the confidence, goodwill and patronage of Southern textile mills which have made possible our present position in the textile industry.

——and may we remind you that HENDERSON Superior Repair Parts, with their precision, quality and long life, can contribute much to your prosperity during 1934 by keeping your machines running economically and efficiently—that low overhead and close location of HENDERSON to your mill means worthwhile savings and quicker service on textile repair parts.

HENDERSON
FOUNDRY AND MACHINE WORKS
HAMPTON - - - GEORGIA

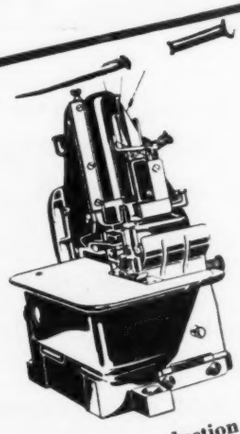


Now is a good time to check up on sewing room costs

IN wishing you a "Prosperous New Year" we offer a practical suggestion that may help you realize that wish.

Prosperity in 1934 cannot be obtained without careful checking of production costs and drastic changing of methods or equipment where necessary. Our suggestion applies to your costs in the sewing room. It is natural that our specialization in high speed machines for every industrial sewing requirement should give us a fund of information on sewing costs, production schedules, routing, etc. We will gladly put such facts before you.

But in addition to that, we offer a simple printed form which will greatly facilitate figuring your costs. Please accept this form 374 (without obligation of any kind) and see whether your sewing room is going to add to or subtract from your prosperity in 1934. We will send the form by mail or by a representative as you choose.



A 26% cut in production costs and a 40% increase in output was the result of replacing ordinary sewing machines with eleven of these Union Special Style 39100 C overseamers for finishing operations on rayon goods in the plant of a well known manufacturer of women's underwear. Name of the company and a copy of the performance audit will be sent on request.

UNION SPECIAL MACHINE CO.

400 North Franklin Street

Chicago, Illinois

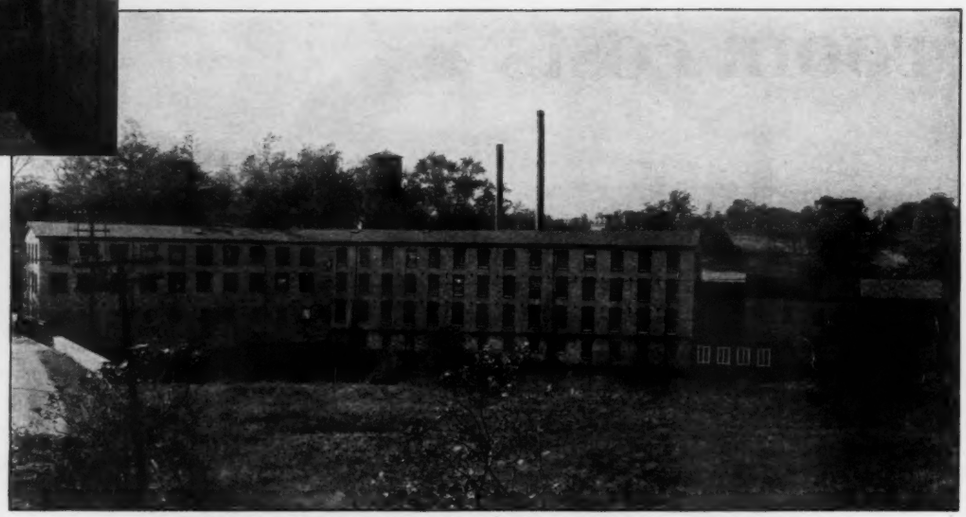
NRA MEMBER U.S. WE DO OUR PART

C 1 Gray

More Steam–More Yarn

with 35% fuel saving

when James Irving & Son, Inc., spinners of woolen yarns, added a Westinghouse Stoker to their present mill equipment at Chester, Penna.



(Above)—*The single-retort Westinghouse Stoker that brought operating economies and increased production to the Chester Mill of James Irving & Sons, Inc., shown at the right.*

THE problem of frequent low steam pressure in this textile mill was solved once and for all by installing a Westinghouse stoker.

Check this comparison

Pressure was down—
NOW, pressure is up.

Dye vats boiled slowly—
NOW, they boil quickly.

Yarn spindles slowed down—
NOW, they turn at full speed.

The mill engine ran with irregular speed—*NOW, it's steady and pulls the load easily.*

Belts slipped—
NOW, they cling tightly.

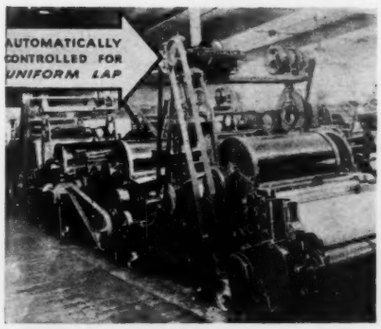
Naturally production lagged with pressure down—
NOW, production is increased.

If low and varying steam pressure is slowing down production and increasing operating expenses in your mill, investigate the economies which the thorough, even fuel combustion of a Westinghouse stoker can bring to you. T 79825

Westinghouse
STOKERS

WESTINGHOUSE ELECTRIC & MFG. CO., EAST PITTSBURGH, PENNSYLVANIA.

HOW *Cotton Mills* USE INDUSTRY'S PROVED UNIT OF VARIABLE SPEED CONTROL



Reduces Lap Variation

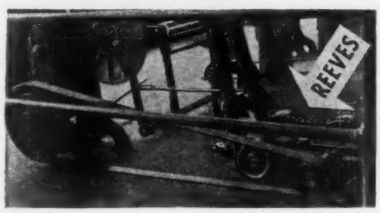
FINISHER section of One-Process Picker at a West Point Manufacturing Co. mill is automatically controlled by a REEVES Variable Speed Transmission.

This application, which replaced cone-pulley control, has reduced lap variation 33.4%, based on difference in weight between the heaviest and lightest portion of laps. Tests were conducted on a standard lap weighing 14.50 oz. per yard. Before installing REEVES speed control, the average weight was 15.20 oz. With REEVES control the average was held to 14.44 oz. Other mills have obtained equally good results on REEVES-equipped One-Process Pickers.

Boosts Beamer Output

A LARGE southern mill has increased production more than 37% on a Long Chain Beamer through a simple application of the REEVES Transmission.

Average number of yards per minute was increased from 137.5 to 219.8, and actual machine time reduced from 72.7 minutes to 45.5 minutes. A *constant* peripheral winding speed—and, therefore, *uniform tension on yarn*—is maintained by the automatically controlled REEVES Transmission from empty to full beam, insuring *higher quality* yarn.

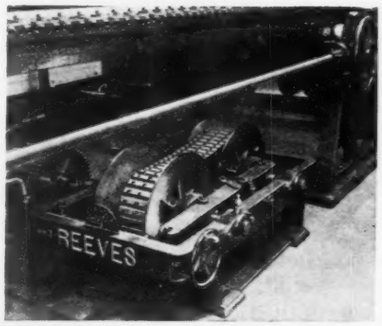


A Few Examples of Many Cost-Reducing, Process-Improving Applications of the REEVES Transmission

Modernizes Slashers

ON THIS slasher obsolete cone pulleys are replaced by a REEVES Transmission which provides *positive* transmission of power.

This puts instant, accurate control of drying time at operator's finger tips—and insures *absolute uniformity* in drying of warp yarns. Correct rate of travel over cylinder is obtained to match every changing requirement. Costly pulley changes and belt slippage are eliminated. Delivery of uniformly pliable, elastic warp to looms reduces end breakage.



Tenter Frame Control

APPLIED to any Tenter Frame the REEVES insures absolute *precision* in speed control. Merely by adjusting a convenient handwheel the operator instantly secures exactly the speed needed to compensate for each variation in weight of material, moisture content, humidity, temperature and all other variances in production conditions.

Easily Applied to Any Textile Machine

ANY DRIVEN MACHINE, used in cotton, wool, silk and rayon manufacturing and finishing, may be quickly and inexpensively equipped for *increased efficiency* by applying the REEVES Variable Speed Transmission. . . . Available in speed range as wide as 16:1. Many sizes, designs, types of control. Every feature, including basic design and sturdy compact construction—*time-tested* in exacting service. Standard equipment on many machines. Facilities in all leading textile centers for *specialized* engineering service.

MAIL COUPON FOR THIS VALUABLE BOOK

REEVES PULLEY COMPANY, COLUMBUS, INDIANA

Send 74-page catalog T-99 illustrating and describing REEVES applications on textile machines. 1-34

Name.....

Company.....

Address.....

Cocheco
Heeds the Call of the Sea

COCHECO TRADE MARK BELTING

Power boats of all classes and sizes have so constantly and consistently grown in popularity that their construction has assumed the proportions of an important industry utilizing every modern production facility to insure efficient and economical plant operation.

Marine motor builders use COCHECO Belting because its quality standard and service capacity measure up well to the standards they set for their plants and products.

COCHECO strength, resiliency, long life, mean better, more economical power transmission. It is the simple explanation for COCHECO popularity in every industry and class of work in which leather belting can be used.

The COCHECO "Book on Belts" explains *why* quality leather belts are desirable for use where possible; it shows you how we guarantee Cocheco Quality. May we send it?

I. B. Williams & Sons

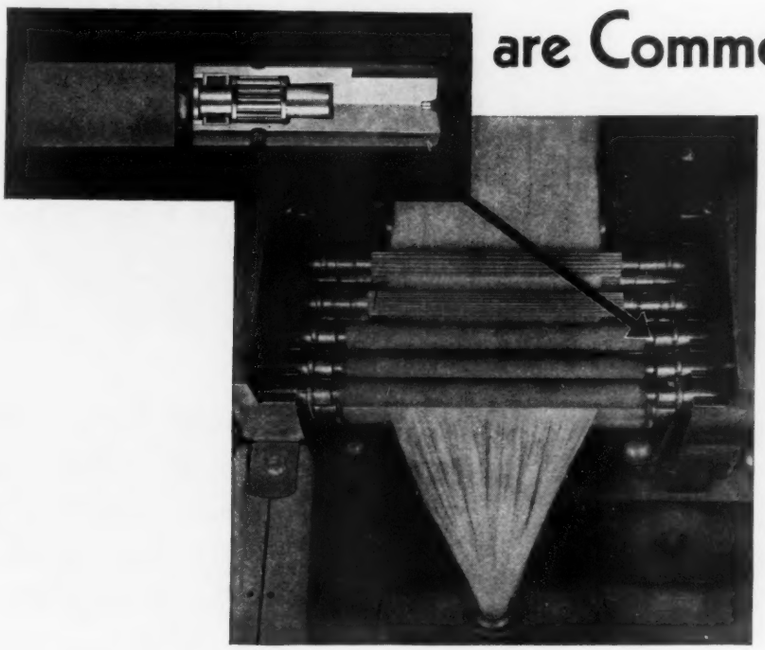
Dover, New Hampshire
U. S. A.

DETROIT
CHICAGO

NEW YORK
PHILADELPHIA

GREENVILLE, S. C.

Drawing Frames with Anti-friction Bearings are Common Practice Today



—because new drawing frame design is in step with the modern mechanical methods used in the construction of your new motor car, the spinning frame or the slasher. As a result when Hyatts are used there are no sticking top rolls—no oil on the cotton—no wear on the gudgeons—and roll coverings last longer.

Is There Any Reason Why Your New Looms Shouldn't be as Modern Mechanically as Your New Drawing Frames?

If you specify Hyatt bearings on the crankshaft, bottom shaft and rockershaft, your looms will be up-to-date and you will save money on repairs. Your power bills will be less and your increased production will not be spotted with oil causing lost time for the cloth room inspectors.

Think these things over and ask yourself why more than 100,000 Hyatt Roller Bearings successfully operating in looms today have proved the case. Hyatt Roller Bearing Company, P. O. Box, 476, Newark, N. J.

H Y A T T

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

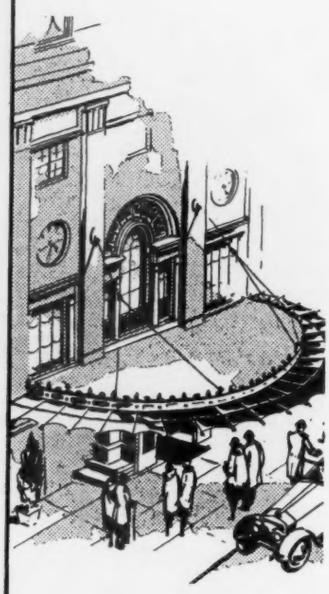
The VANDERBILT Hotel

New York City

An hotel of Distinction
with very Low Rates

Single Room & private bath $3.00

Double Room with two beds & private bath $6.00



WALTON H. MARSHALL, Manager
Park Avenue at 34th St., New York

The Della Robbia Room

Get rid of— DYEHOUSE DEADWOOD

"Hunter" Nickel-Clad Steel Dye Kettle for piece goods. All welded tank construction. Solid Nickel sheet used for false bottom, partition, triangular main reel, delivery reel, etc. Manufactured by James Hunter Machine Co., North Adams, Mass.

James Hunter Machine Company's equipment of Nickel-Clad Steel offers new short cuts... no boil-outs... no re-dyes

● It's plain as daylight—the use of wood in large piece-goods dyeing tanks is obsolete—antiquated—out!

Experience proves it. In cost sheets ... in production records ... in improved product.

See for yourself, with Hunter dyeing kettles, made of Nickel-Clad Steel.

Great savings in color changes alone

However delicate the tints, however mixed, you can switch from one set to the next without boiling out—nothing more than a quick rinse.

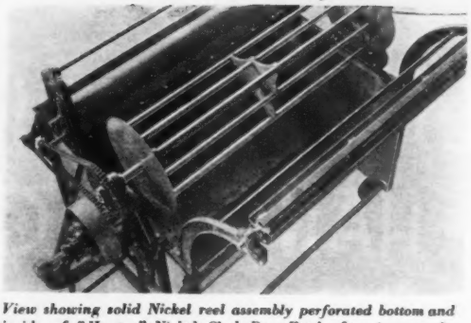
You save not only time but dyestuffs and supplies, too. For Nickel surfaces, like Monel Metal, absorb no dye liquor.

That prevents off-shades; saves re-dyes.

True colors — better product

Nickel is absolutely free from rust; it resists corrosion and does not react chemically with the majority of dyestuffs ... all qualities that assure true shades.

Add to these advantages Nickel's smooth, splinterless surface, and you readily see why Hunter kettles turn out a better product.



View showing solid Nickel reel assembly perforated bottom and inside of "Hunter" Nickel-Clad Dye Kettle for piece goods.

Great strength — long service

Nickel-Clad Steel makes big savings in upkeep, as well as running costs.

There is no replacing of rotted wood. No light gauge metal lining to buckle or leak. This equipment has tremendous strength that endures practically endless wear ... even abuse.

It is hardly surprising, then, that Hunter kettles are used in such great modern plants as The Viscose Company, Marcus Hook, Pa., F. C. Huyck & Sons, Albany, N.Y., and many other well known establishments.

Write for information about these machines as well as other Nickel and Monel Metal textile equipment.

NRA MEMBER U.S. WE DO OUR PART

NICKEL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 Wall Street, New York, N. Y.

Sales Builders for SOUTHERN TEXTILES

New Designs
Reproductions

GJA

LABELS • TICKETS
BANDS • HANG TAGS •
BOLT ENDS • RIDERS • •

JACOBS GRAPHIC ARTS COMPANY
CLINTON___SOUTH CAROLINA

A product that doesn't require "Ballyhoo"— DIASTAFOR

Claims mean nothing unless the product lives up to them. And you can't rely on isolated tests. No, the proof of a product's worth is in its performance . . . . in its consistent and uniform workability—not once in a while but day after day and year after year.

Instead of depending on claims and isolated tests, Diastafor has proved its utmost dependability and uniformity over a period of years.

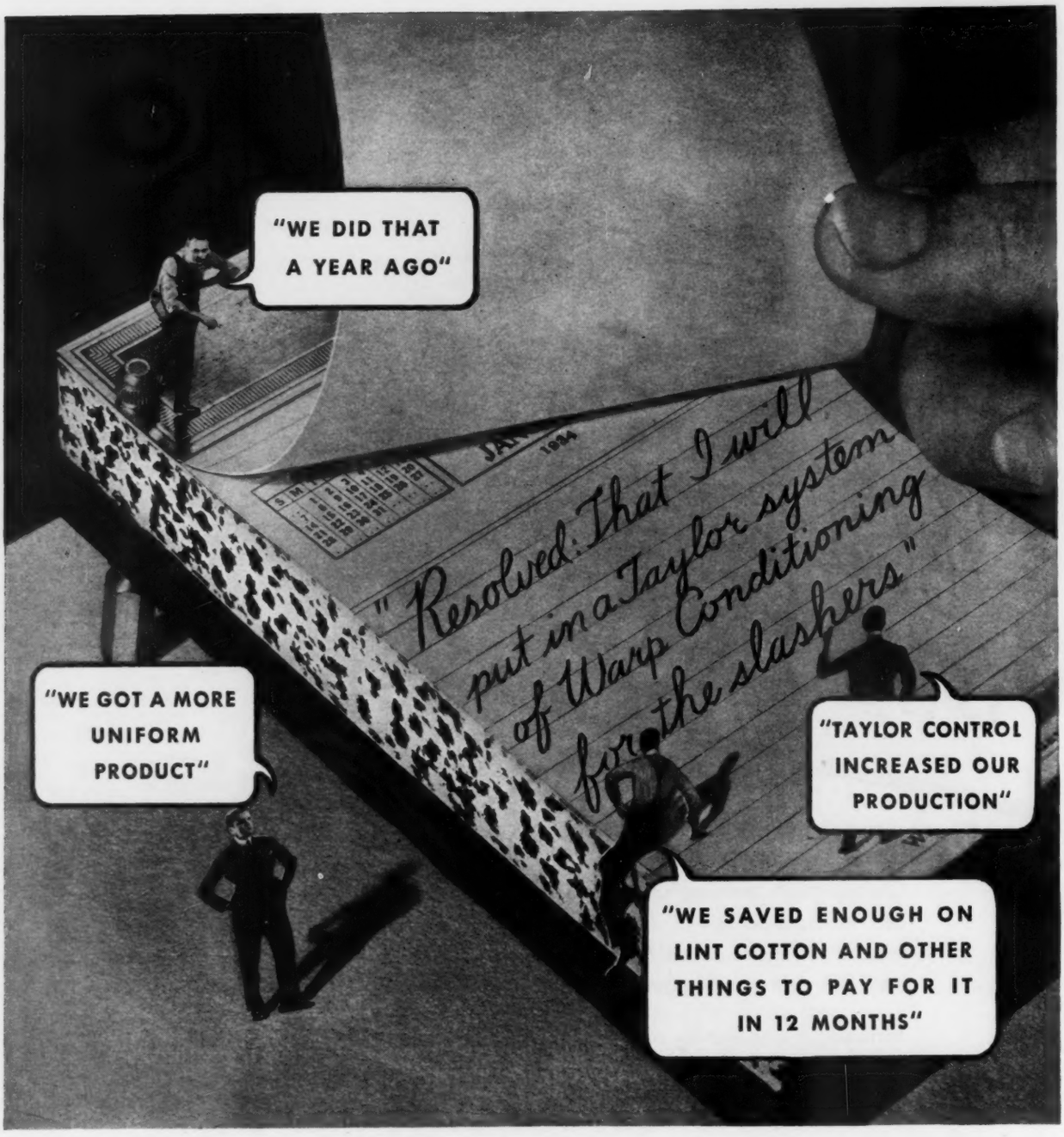
That's why the most famous mills in the country always use Diastafor.

Diastafor insures perfect dyeing and bleaching and gives your fabrics that soft, supple feel that the consumer terms as perfection. Use this famous desizing agent and you will satisfy today's demand for *quality*.

Let our technical man advise you, or write to—

Fleischmann's DIASTAFOR

DIASTAFOR DEPARTMENT--STANDARD BRANDS INCORPORATED
595 MADISON AVENUE **NEW YORK CITY**


"WE DID THAT A YEAR AGO"
"Resolved: That I will put in a Taylor system of Warp Conditioning for the slashers"
"WE GOT A MORE UNIFORM PRODUCT"
"TAYLOR CONTROL INCREASED OUR PRODUCTION"
"WE SAVED ENOUGH ON LINT COTTON AND OTHER THINGS TO PAY FOR IT IN 12 MONTHS"

WHAT ABOUT YOUR MILL?

IF YOU do not have a Taylor Warp Conditioning System in your mill, you should certainly consider its installation this year.

A Taylor Representative can soon determine how you can use Slasher Control most efficiently. What you get is a unified system of warp conditioning designed and engineered especially to fit your specific needs. Taylor Engineers supervise the installation from start to finish.

Records show that this System usually pays for itself in a year—often in a shorter time.

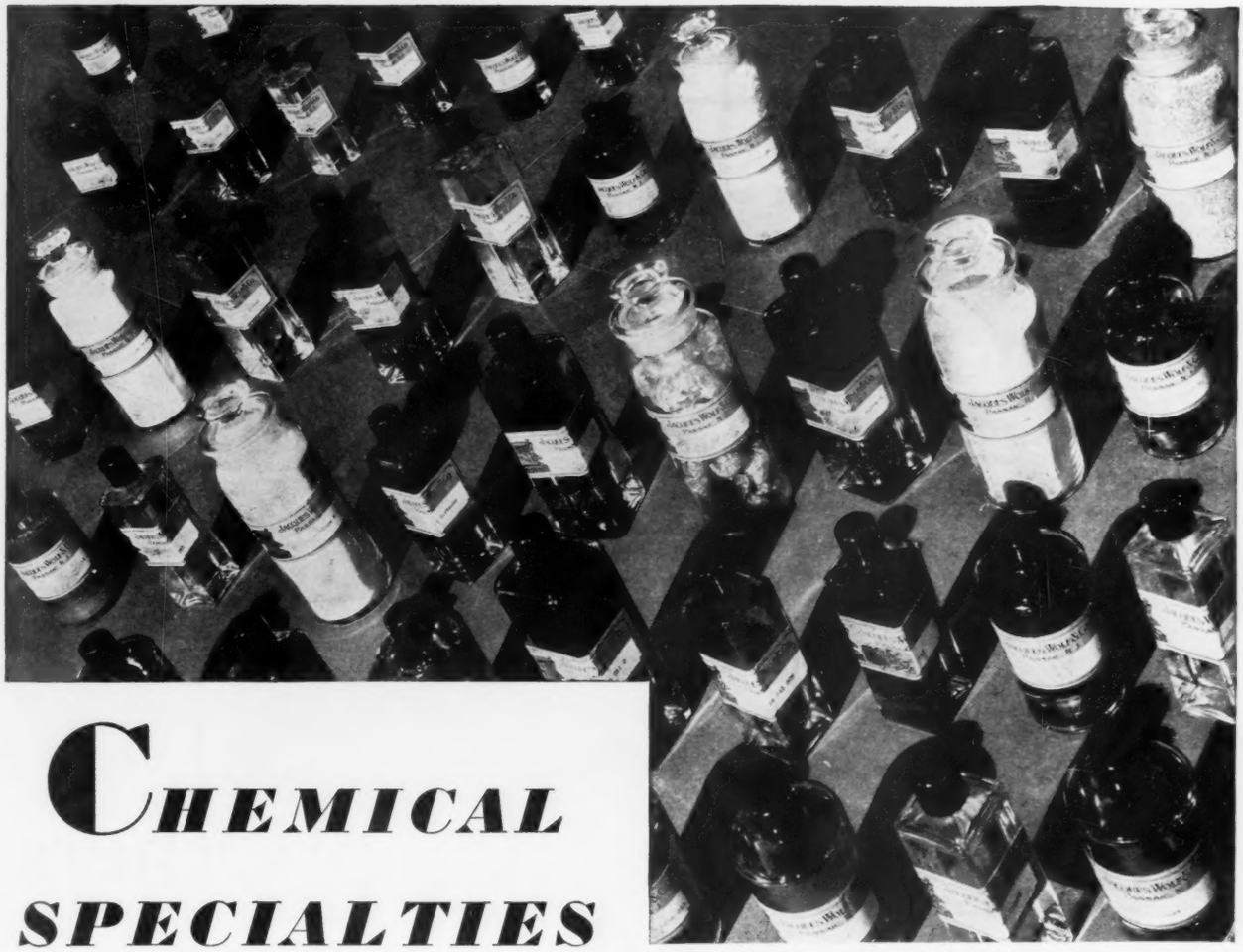
Send for a Taylor Representative. Let him make a survey in your mill. Write also for a booklet telling more about this System of Slasher Control. Send to our sales offices in Atlanta, Boston, or Toronto, Canada. Or direct to Taylor Instrument Companies, Rochester, New York.

Taylor

Indicating / Recording • Controlling

TEMPERATURE *and* PRESSURE INSTRUMENTS

The name Taylor now identifies our complete line of products, including Tycos instruments.



CHEMICAL SPECIALTIES

for Every Textile Need

● The Jacques Wolf line of textile chemicals includes chemical specialties for every phase of textile processing — dyeing, bleaching, scouring, finishing, printing, lubricating, delustering, sizing, etc.

In addition to these more staple products our chemists are constantly cooperating with our customers on special problems which in a great many cases actually result in additional new products as well as improvements in the regular line.

Perhaps you have not been aware of the complete facilities we offer. We invite your confidence and welcome the opportunity to work with you.

WOOL
Bensapol
Wool Oils
Shoddy Oils
Wool Finish
Wolfco Scouring Agents
Hydrosulphite Strip

COTTON
Kier Oils
Soluble Wax
Soluble Castor Oil
Wolfco Sizings
Dye Penetrants
Cream Softeners
Stearic Softeners
Sulphonated Oils
Waterproofing Compounds
Soluble Pine Oil

GUMS
Arabic
Tragacanth
Karaya

LUPOGUM
MONOPOLE OIL

RAYON
Penetrators
Knitting Oils
Scouring Oils
Delustre S-342
Rayon Softeners
Sizing Lubricants

SILK
Finishes
Tin Dye Oil
Boil-Off Oils
Boil-Off Bleach
Chafe Remover
Turkey Red Oil
Sulphonated Olive Oil W-X-W
Textile Gum for Printing

HYDROSULPHITES
Stripping, Discharge
Printing, Vat Colors
and Indigo Discharge

LUPOSOL
SUPERTEX

JACQUES WOLF & CO.

Manufacturing Chemists and Importers

Passaic, N. J.

Warehouses: **Providence, R. I. • Philadelphia, Pa. • Utica, N. Y. • Chicago, Ill. • Greenville, S. C. • Chattanooga, Tenn.**

Profit by the Mistakes of Others

Experience is the best teacher, but a hard one when obtained first hand. Therefore it is often quicker and more economical to get experience second hand.

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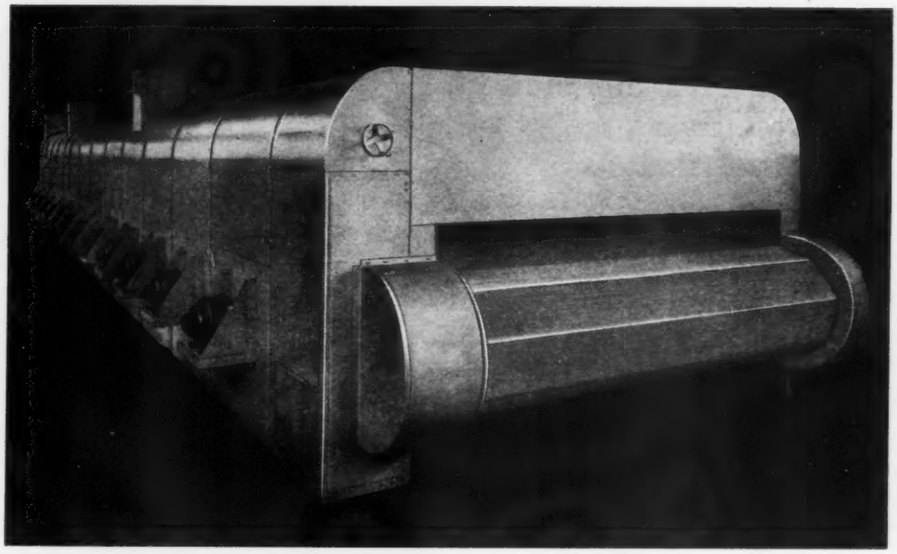

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Vol. 98 **COTTON** No. 1

January, 1934

W. R. C. SMITH, Publisher
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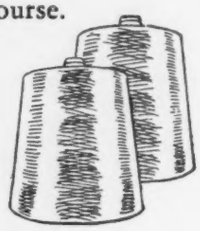
BUSINESS SHIPS that sail the commercial seas will require most skillful piloting this year—to follow the course to *profitable* sales, ignoring the siren call of volume-at-any-price. ◆ ◆ "Skippers" are most carefully scrutinizing their *sources of supply.* They realize the great importance of these in offering their trade consistently high quality, in giving value, in maintaining the service that holds old customers and gains new ones. ◆ ◆ INDUSTRIAL supplies products of uniformly high excellence to mills which stress *quality* rather than price alone. With these products goes a policy of utmost cooperation and assistance in their use through technical service and in their distribution through effective, "custom-built" trade promotion. ◆ ◆ Possibly INDUSTRIAL can help you, too, chart your course.



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Yarns and Knitted Fabrics

Vol. 98
No. 1

COTTON

January,
1934

Trends in Yarn Production in the South and New England

AN easily-read statistical analysis of the trends in yarn manufacture in the Cotton-Growing States and New England, between the years 1919 and 1929, the latter being the latest year for which authoritative figures are available.

This analysis shows conclusively that the South is raising the counts of its yarn in addition to producing a constantly increasing percentage of the total yarn manufactured in this country . . . . . .

By G. Gordon Osborne

THE years 1919 and 1929 mark the beginning and end of the greatest transition period that cotton manufacturing in this country has ever known. It is indeed fortunate that only in these two years the United States Bureau of the Census recorded data which is of considerable interest to all cotton manufacturers. These figures concern, among others, the type and amount of product made by the different cotton manufacturing states. By interpreting them much of historic interest and of future trends can be learned.

Table 1 gives in summary form, the production of different numbers of yarn in millions of pounds for New England and the Cotton Growing States. Each section of the table is divided into two parts: the pounds of each count produced for consumption, and those produced for sale. The yarn groupings have been arbitrarily taken by the Bureau, and are left as reported.

These figures may be considered from two points of view: 1, as a measure of the size and growth of the industry; 2, the change occurring in the type or quality of the product produced.

Taking the figures first from the viewpoint of a measure of the size and growth of the industry; the total of each main classification listed in the table is largest for the South. In yarns produced for own consumption the South leads by 332.2 million pounds in 1919, and by 1,258.5 million pounds in 1929. There is also a considerably larger and increasing amount of yarn produced for sale in the South; the figures show that the South led New England by 150 million pounds in 1919, and by 430.0 million pounds in 1929. It will also be noted that the totals show an increase in the South, while in New England, the opposite is true, each year shows a decrease. The percentage increase in the South in yarns for sale is 40.1 per cent and in yarns for own consumption 75.0 per cent. In New England the same percentages, but representing a decrease, are 64.6 per cent and 29.3 per cent.

In this period it is interesting to note that the bi-ennial statistics for yarn produced for sale, regardless of size, show a large and steady rise in the South to 1927, and a slight falling off from then to 1929. In New England production during this period has been steady.

Now looking at the same figures in Table 1 from the second point of view, i. e., the change in type of yarn rather than amount of yarn. It is here that the more interesting and significant results can be shown; but first a more interpretable division than

TABLE I — COTTON YARNS PRODUCED FOR CONSUMPTION AND SALE* IN MILLIONS OF POUNDS

			20s & UNDER LBS. UNDER 21s	LBS. 21s TO 40s	LBS. 41s TO 60s	LBS. 61s TO 80s	LBS. 81s TO 100s	LBS. 101s TO 120s	LBS. OVER 120s	LBS. TOTAL
COTTON GROWING STATES	FOR USE	1919	584.4	383.3	13.5	1.1	.5			992.8
		1929	939.2	743.2	38.2	3.1	1.1	.1		1725.9
	FOR SALE	1919	210.6	119.8	21.1	7.4		.3		359.0
		1929	275.2	183.5	41.5	19.3	3.0	.8		503.3
NEW ENGLAND STATES	FOR USE	1919	199.1	376.8	65.8	11.1	6.2	1.5	.3	660.6
		1929	134.9	229.1	81.1	18.5	5.5	.2	.06	467.4
	FOR SALE	1919	52.5	127.8	29.3	3.2	2.1	.3	02	209.0
		1929	24.8	37.8	7.7	1.4	1.3	.4	05	73.3

*EXCLUDES YARNS FOR DARNING, CROCHETING, KNITTING, SEWING THREAD AND EMBROIDERY.

the purely numerical size intervals as collected by the Bureau will help. Without changing these size intervals, let everything over 60s be considered as a fine yarn, and those yarns under 20s be considered coarse.

With this division in mind an analysis of the figures gives the following: in 1919 the South produced for its own consumption, 1.1 million pounds of yarn above 60s, or only 1.1 per cent of the total yarn produced in the South—992.8 million pounds—for this purpose was fine. However, in 1929, this amount rose to 4.3 million pounds, making the yarns above 60s, produced for own consumption, 2.5 per

cent of the total—1725.9 million pounds. Closer analysis shows that in 1919 practically all the fine yarn produced in the South for this purpose was of the class 61s to 80s. In 1929, the percentage was 72½% between 61s-80s, 25½% between 81s-100s and 2% between 101s-120s. Thus, over this decade there has been a decided increase in the South in the higher counts of fine yarns, besides an absolute and relative increase in the amount of fine yarns taken as a class by themselves. Of all the yarns below 60s produced in the South for this purpose, in 1919, 59% were below 20s, 39½% between 21s-40s, and 1½% between 41s-60s. In 1929, the figures were 54½% below 20s, 43% between 21s-40s, and 2½% between 41s-60s.

These figures distinctly show that in yarns produced and used for consumption the South has increased the fineness of its counts. It will be seen that there is a relative drop in the counts below 20s, a relative increase in the 41s-60s or high-medium yarns; also there is an increase in the higher counts of fine yarn spun, besides a general increase in fine yarns used based on total figures.

In analyzing the figures for yarns produced for sale in the South, we find these same conditions and trends, but in this group the movement is more emphatic and clear cut. There is a definite movement away from the coarse yarns, a definite movement towards fine yarns. In the group below 60s there is an increase in the high medium count yarns, while in the fine yarns there is an increase in the counts spun above 80s. These findings are condensed in Table II.

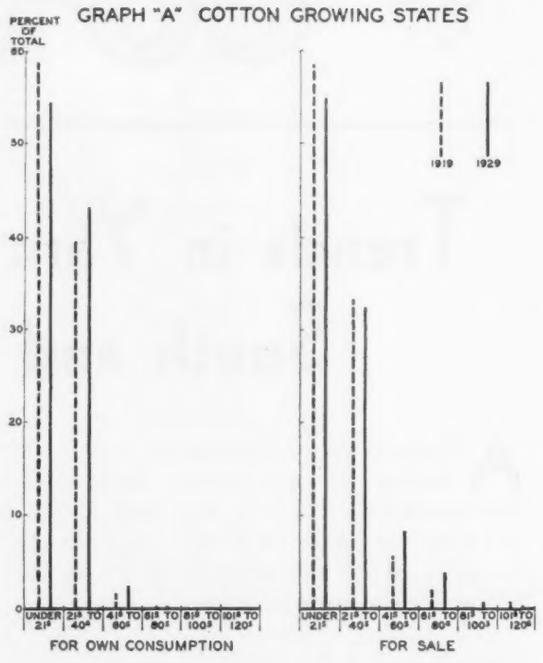
It is interesting to note the following, which an examination of these figures by states reveals, for

TABLE II — PERCENTAGE OF DIFFERENT COUNTS OF TOTAL YARNS PRODUCED

			% UNDER 21s	% 21s TO 40s	% 41s TO 60s	% 61s TO 80s	% 81s TO 100s	% 101s TO 120s	% OVER 120s
COTTON GROWING STATES	FOR USE	1919	58.8	39.6	1.4	2			
		1929	54.3	43.1	2.3	2	.1		
	FOR SALE	1919	58.5	33.2	5.7	1.9		.7	
		1929	54.8	32.3	8.3	3.8	6	2	
NEW ENGLAND STATES	FOR USE	1919	30.2	57.0	10.0	1.7	.9	.2	
		1929	28.6	48.9	17.3	3.4	1.2	.5	.1
	FOR SALE	1919	25.2	61.1	11.1	1.5	1.0	.1	
		1929	51.4	10.5	1.9	1.8	.5		

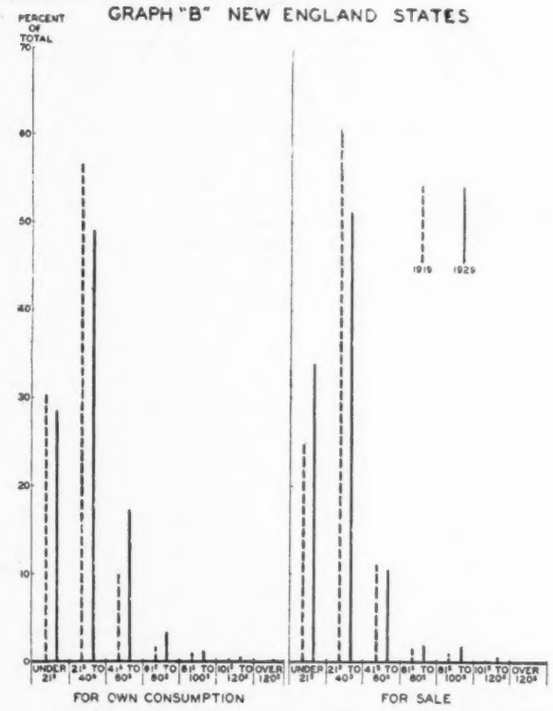
it has a decided effect upon hindering and reducing this movement in the South: (a) the State of Texas does not produce or use any yarn above 40s; (b) Alabama does not use any yarn above 60s; (c) Georgia produces nothing above 60s. (These are 1929 figures). North Carolina and South Carolina are the two fine yarn producing states in the South.

The statistics of yarn production for the Cotton Growing States in these two important categories—For Use, and For Sale—have been put in the form of diagrams in Graph A. The two years considered, 1919 as the beginning of the period (represented by the dotted lines), and 1929 as the end of the period (represented by the solid lines), are compared as percentages, based on the total pounds of yarn produced in each category. In both Graph A and Graph B, the sum of the dotted columns (1919 production) of the Yarn Produced for Own Use, total



100 per cent. Similarly, the solid columns (1929 production) of Yarn Produced for Own Use, total 100 per cent. And the dotted lines (1919 production) and the solid lines (1929 production) of Yarns for Sale each totals 100 per cent. The yarn count class intervals are those given by the Bureau, but we may still assume our arbitrary division of 60s as making the lower boundary of fine yarns, and 20s the upper boundary of coarse. This diagram is the most striking way of showing that over half the total yarn produced in the South is below 20s or coarse, and this despite the fact that there has been a movement away from the manufacturing of coarse counts, also shown in Graph A. Furthermore, over 35% of the total yarn produced falls into the next class, low medium counts, 21s-40s. The greatest relative increase comes in yarns produced for sale in the count classes 41s-60s and 61s-80s. Further deductions on the course of trends in this decade are as explained above and are made self evident from the graph. It is interesting to compare this chart with the one for New England—Graph B.

Now considering New England on similar lines of approach. With one exception, there is very much the same movement as in the South, but to a less extent and with greater fluctuations. This one exception is in yarns produced for sale in 1929, and here there is a decided trend in the opposite direction, i. e., towards coarser counts. Also New England starts with an enormous lead in the fine yarn field. As is seen from the table, the percentage of yarns in New England under 20s, for any year and for any group, is always less than 40 per cent, averaging about 32 per cent; while in the South, yarns under 20s are always above 50 per cent, averaging about 55 per cent. Further, in New England, the percentage of yarns above 60s is always above 20 per cent, averaging approximately 35 per cent of



the total; while in the South it never reaches 5 per cent of the total, and is on the average about 3 per cent. New England is always represented in each group in the extra fine field—yarn above 120s—while the South is not.

A diagram similar to that shown in Graph A has been made for New England and is presented in Graph B. The method of organizing the material is identical. The difference lies in the data itself and is as follows. The great bulk of all yarn produced in New England falls into the low medium count classification, that of 21s-40s. In 1919, over 55 per cent of the total was so included, and in 1929, this class still accounted for approximately 50 per cent. Of coarse yarns, those under 20s, New England is producing relatively more now than at the beginning of the decade; in percentage approximately 31 per cent as against 27 per cent. The change, however, is not the same in each category; there is a slight decrease in the yarns produced for consumption, but a more than offsetting increase in the yarns produced for sale. Just the opposite result has happened in the count group 41s-60s. Here the yarn produced for consumption has increased from 10 per cent to 17 per cent, while yarn produced for sale has had a very slight drop from its 11 per cent mark in 1919. In all the classifications of fine yarns there has been a relative increase in the amount spun. In comparing this chart with the one for the cotton-growing states, it will be readily seen that in New England, changes have been greater, the range of counts spun is larger, and that there is a decidedly higher count organization.

To bring the whole of this investigation to a very practical summary, the following table has been compiled:—

Cotton Yarns—Average Equivalent Count

Cotton Growing States	1919	1929
For Own Use	18.6s	19.7s
For Sale	20.3s	22.0s
New England States		
For Own Use	27.1s	29.5s
For Sale	28.6s	27.5s

Each class of yarn for each year has been reduced to an equivalent count and the average for each year is the result. The changes in average counts are small in an absolute sense, but nevertheless, relatively they are very significant. In the South, 1929 always shows a higher count yarn than 1919, and this definitely establishes the contention that the South is spinning finer yarns. The percentage increase in fineness is 5.9 in consumption and 8.4 in sale. In New England, the average counts have become finer for yarns produced for own consumption but become coarser for yarns produced for sale. The percentage increase in the former being 8.9 while the decrease in the latter is 3.8.

The difference between the two sections is also significant. In general the South is raising the counts of its yarn at a greater proportionate rate than New England. This is especially true in the For Sale group where the increase has been most rapid, and as the tendency is to equalize it is a symptom which may be interpreted to show that both are manufacturing for the same demand.

Kendall Mills Start New Selling Policy

The Kendall Company recently announces that, effective December 4, the textile sales departments of its Griswoldville Manufacturing Company and Lewis Manufacturing Company units have been consolidated and will operate as Kendall Mills, division of The Kendall Company. Cheesecloth, buntings, layette-cloth diapers, dusting, cleaning and polishing cloths, curtain and drapery fabrics, chintzes, preshrunk and Sanforized interlinings, supers, crinolines and industrial textiles including packaged products merchandised under the long-established Sorbant and Curity trade-marks will be concentrated in the new division. Surgical textiles for the hospital and allied trades continue under Lewis direction. The Bauer & Black and other Kendall divisions are unaffected by the operating realignment.

Lewis Manufacturing Company, Walpole, Mass., the original plant of The Kendall Company, has developed a varied group of products in the surgical textile and drygoods fields. The Griswoldville company, a hundred-year-old concern with plants at Turners Falls, Colrain and Griswoldville, Mass., was acquired by Kendall in June, 1932.

Henry P. Kendall, president of The Kendall Company, is president of Kendall Mills. R. R. Higgins, general manager and sales manager of Lewis, is vice-president of the new organization and will continue the same functions at the general office in Walpole. R. L. Moyle, who has been sales head of Griswoldville, is also a vice-president and has his offices at 40 Worth Street, New York. Lawrence Davis is advertising manager; Richardson, Alley & Richards of Boston and New York advertising agents.

The customers of the two companies being consolidated will continue to be served by the branch office representatives: A. S. Nash, New York; W. J. Burke, Chicago; F. G. Ensign, Cleveland; H. G. Kilbourn, Philadelphia; H. W. Cole, St. Louis, and S. M. Taylor, San Francisco.

The purpose of this department is to pick up ideas from this mill and that, and deposit them here for you and others in pithy paragraphs. If you haven't already told us whether you like it or not, please do so now. The Scavenger Roll will welcome also suggested topics and paragraphs from readers. Let us hear from you . . . . . .

More About Solid Creeling

With further reference to the item published recently on the solid creeling of spinning (Page 43, September COTTON), further information has been obtained from the mill referred to at that time. In searching for the causes of stretched roving this mill found that wide cone belts on the roving and fly frames was a contributing factor. The shape of the cones would cause one side of the belt to pull differently from the other side, so that two narrow belts have been adopted. In proof of this necessity for getting away from the wide belt is cited the fact that if a chalk mark is made across the two narrow belts in a few revolutions the marks will be several inches apart. To get even feeding of the roving in the spinning room this mill is seeing to it that just as good rolls are run on the back line as on the front. Not only even feeding and running out of the roving should result from this practice but also more even, uniform yarn. Mills have no doubt been "penny wise and pound foolish" in running any old kind of leather roll on the back line in the spinning room. Particularly on quality products must this be true, for the result cannot be any more even than the delivery.

It is interesting to note further ramifications of this solid creeling idea. The mill had to put on an extra band boy to be sure no idle spindles were in the room. Also, since going so thoroughly into a quality proposition the method of oiling steel rolls was changed from the usual drip can method to that of painting the oil on the roll necks with a brush. Careful regulation of humidity in the card room by means of up-to-date equipment and control are required to keep tensions uniform and yardage exact from day to day.

Filling Wind for Barber-Colman

Recently we had the opportunity to see something that we had been told couldn't be done; namely, using filling wound warp for Barber-Colman spooling. The mill has been doing it several years and so far as we know no other mill is doing it. The yarn number is 30s, the ring size 1¾-inch No. 2 flange, the draft is 20 from single roving, Casablanca type drafting, 125 r.p.m., front roll speed, 7-inch traverse, ⅞-inch barrel bobbin straight warp type. The ring rail runs down slowly and up fast, putting on 12 wraps of yarn on the upstroke and 27 on the downstroke. The length of taper on the package is 2-inch. The yardage attained with this layout is 2,640. The spooler is run at standard speed and evidences of sloughing are lacking.

A "Fair Exchange"

Through an open office door recently came a story every salesman hopes is true but is afraid sounds too good. A salesman sent in his card to a purchasing agent who returned word "busy". The salesman told the information girl to go in and to get his card, that the cards cost a cent each, that he had called a dozen times, had lost that many cards, and had never gotten to see the buyer. The girl returned with the message from the purchasing agent that the card had already been destroyed and he, not having a penny, had sent out a nickel. And the salesman, having no change, sent in four more cards, whereupon he was called in and given an order.

Constants for Trumpet Holes

No doubt there are rules and constants somewhere by which card, drawing, and comber sliver trumpets are bored. But it was only recently we ran across a method of determining the proper size trumpet hole for a given weight sliver. This was furnished by an experienced and successful superintendent who had gotten it from his father, a pioneer in mill construction and engineering in the South. The formula is given below, even through the third drawing process now so rarely encountered. We would like to know how this checks with modern practice—and how many men have given serious thought and attention to the proper condensation of the sliver by the trumpets. The formula is for carded work.

Card: Diam. bore (in 64ths of an inch) = √(weight sliver in grains per yard) × 1.4.

1st Drawing: Diam. bore (in 64ths of an inch) = √(weight sliver in grains per yard) × 1.1.

2nd Drawing: Diam. bore (in 64ths of an inch) = √(weight sliver in grains per yard) × 1.0.

3rd Drawing: Diam. bore (in 64ths of an inch) = √(weight sliver in grains per yard) × 0.9.

A Benefit of Improved Picking

A mill man calls our attention to a striking example of an experience common to many, that of looking for one thing and finding something else. He had changed his pickers to one-process and was getting the more even laps and cleaner stock he had expected. The results all the way through the mill were satisfactory. For twenty years this mill had run 72 looms on osnaburgs made from re-worked card strips. Gradually more and more of these looms were stopped, waiting for the waste yarns. The carder became very much perturbed and reported to the superintendent that he just wasn't getting sufficient strips to keep the allotted spinning frames busy. There had been no settings changed on the cards; this is authentic. Now only 48 looms are running on re-worked strips. The answer seems to be simply that the improved picking damaged the fibers much less, breaking fewer of them at the beaters and crushing fewer by the elimination of calendering. Evidently there was less short stock for the cards to take out. It is not generally appreciated how much damage is done to the fibers by excessive calendering. A couple of good mill men ran a lap several times through the calender rolls of a picker. After a few such trips the lap began breaking down, dust and small particles of fiber began to drop out of the stock. One expressed the opinion the lap could have been eventually reduced to dust simply by calendering if it could have been held together for running through the rolls.

Preventing Traversing Thread Boards Sticking

Some trouble has been experienced with lifting rods sticking on the traversing thread boards that have comparatively recently been revived and improved as an aid to large package spinning. It is said when one of these rods sticks the thread board is usually bent and that it is a hard, almost impossible task to straighten it for further satisfactory operation. One superintendent was warned about this before he installed new spinning frames, and he has made a small improvement on the machinery builder's design to eliminate this trouble. The top bushing through which such a rod runs is about ¾-inch long. This man has run a drill, somewhat larger than the rod, into the bushing at each end, boring away all but ¼-inch of the bushing bearing face. This is sufficient for holding and guiding the rod in its traversing motion, and allows a little receptacle at the top of the bushing for putting in lard oil. To date no traversing thread board lifting rods have stuck in this mill.

Re-Fluting Steel Rolls

An improvement in the art of re-fluting steel rolls has been developed lately whereby the rolls are brought up to their original diameter. The information we have on this is not as exhaustive as we would like. We understand the bosses are brought up by pressing the fluting tools into the grooves very hard, the stock between them thus being squeezed outwardly. One man has raised the objection that stock so pressed or strained develops minute cracks or fractures that show up in the course of time. We do know one mill on 98s yarn that found some rolls worn down as much as 6/1000ths to 8/1000ths of an inch on which this raising of the flutes has proved very satisfactory.

Some Textile Machinery Applications of Variable Speed Drives

By H. H. Iler

Mechanical Engineer, Union Bleachery
President, Southern Textile Association

HERE a prominent southern operating executive describes a number of applications of variable speed driving mechanisms to textile manufacturing equipment, and gives his experience in the cotton mill and finishing plant with one type of equipment for this purpose . . . . . .

REDUCTION of operating time naturally lends greater importance to efficiency, and efficiency now means, more than ever before, attaining and maintaining the full potential productive capacity of the machinery. It has always been good business to operate efficiently, but there has never before, perhaps, been as much incentive as now exists to realize to the fullest extent the capabilities of our machinery, in order to offset as much as possible the increasing overhead and other fixed charges.

To secure the greatest possible production does not necessarily mean, however, that machines must be run at the highest possible speed hour after hour and day after day. It is entirely possible, in fact oftentimes true, that variable influencing factors so affect operation that speed decrease results in production increase. Changing conditions of temperature, humidity, raw stock, etc., are to be considered in determining speeds, and they are of sufficient importance that means of adjusting the speeds to meet them, without interruption of operation, justifies substantial investment in equipment to do this.

Where speed changes are desirable, they are best made without interruption of operation, and this calls for some easily controlled adjustable device through which the driving power comes from the prime mover to the driven machine. Where the power set-up in a plant is entirely electrical, variable speed driving motors are now available for varying machine speeds without interference to their operation. There are cases where the variable speed motor may not have a sufficiently wide range of speed change, required by local conditions arising from some physical or operating peculiarity of a machine or group of machines, in which case the combination of such motor with a variable speed transmission serves admirably. I have designed and installed several of these combinations and can testify to their satisfactory service in the cotton mill and finishing plant .

There are several different types of mechanical variable speed transmissions, for use between a constant speed motor and the machine it serves, but the one on which the writer has had practically all of his experience is the type which operates on the friction principle, and in which a special V-belt drives over two pairs of shifting cones that serve as pulleys. The cones are mounted in pairs on separate shafts which are fixed in alignment on a common frame, and are so arranged as to be adjustable together or apart on their respective shafts. Suitable connecting levers move one pair closer together as the other pair are moved away from each other, thus bringing about the condition of increasing the driving pulley diameter while decreasing the driven pulley diameter, or vice versa. The V-belt of course rides outward from the center of the closing cones, and inward on the opening cones as they are moved. These transmissions, simple and rugged in construction, provide a satisfactory means of varying and adjusting speeds of machines while in operation, and are available in many sizes, for either vertical or horizontal use, and require no special attention and care; occasional cleanings, and regular lubrication at fairly long intervals, serve to enable them to give satisfactory dependable service.

These transmissions are especially dependable in the synchronization of machine units operated in range, and they serve admirably in maintaining accurately relative speeds where unit speeds are by necessity dissimilar. Reference to the accompanying illustrations will acquaint the reader with the type of variable speed transmission covered by this discussion, and also indicates that it may be either mechanically, electrically or automatically controlled from remote points, or simply manually controlled as desired.

Photos, courtesy Reeves Pulley Co.

One model of the recently improved variable speed drive for spinning frames . .

In the opening room of a cotton mill this type of transmission in the drive of opening machinery has been applied to regulate the processing stock at that point to meet the requirements of successive picking equipment, even where the picker room may be at a distance—manually motivated cables may be run from picker room back to the drum on the adjusting shaft of the transmission, or the shaft may be motor-driven and the motor controlled through wires

from a push button in the picker room. The motor may even be controlled by hopper feeders to replenish automatically the supply of stock in the hoppers as it is depleted by the operation of the picker.

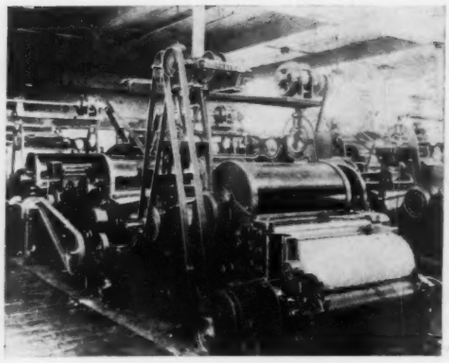
In the picker room, these latter days, the breakers, intermediates and finishers are being "ranged" into what has been named "one-process picking". In at least one application of the "one-process" arrangement, in which the speed of the calender rolls is altered in accordance with the function of the evener motion to produce laps uniform in weight, the variable speed transmission finds a peculiarly valuable application. A recent comparative test run on a machine using variable speed transmission at this point against another equipped with the usual cones and shifting belt, demonstrates conclusively the value of the transmission and shows that the production of laps with a minimum weight variation yard for yard, is easily accomplished by its use. In the test referred to, made in an Alabama mill, one lap from a machine equipped with variable speed transmission in connection with the usual evener motion, and another from a machine having the old cones and shifting belt in connection with a similar evener motion, were cut into one-yard pieces and the pieces weighed separately, the weights being tabulated in columns respective to the machines under test. Variation in the piece weights from the former were found to be 6.06 per cent while the variation of the pieces from the latter was found to be 9.10 per cent. The average yard weight of the former was 14.44 ounces, and, of the latter, 15.20 ounces. The objective yard weight of 14.50 ounces was thus almost perfectly secured by the use of the variable speed transmission.

The writer has not seen applications of variable speed transmission to cards, drawing frames, slubbers and other roving machinery, but to him it seems practicable to use them and utilize this ability to adjust the speeds of these processing machines to the occasional adverse conditions arising from varying temperature, humidity, and peculiarities of stock. Perhaps benefits are possible by inserting variable speed transmission in the drives of individual machines in these groupings, and experimentation in this department is suggested.

Variable Speed on Spinning

The most generally familiar application of variable transmission in a spinning mill is the use of this equipment on the spinning frame itself. Recent changes in this particular application have made the device particularly applicable and especially worthy of detailed description here.

This spinning frame drive, applicable to old or new spinning frames or twisters, utilizes the principle of a single V-block belt running between sheave pulleys which can be varied in diameter. From a solid sheave of fixed diameter on motor shaft, power is transmitted by the V-block belt to a special sheave of variable diameter on the cylinder shaft. The equipment for variable speed spinning is made in three types: one for warp build, one for filling and one for combination. The control mechanism is operated from the ring rail cross shaft in each case. It is assembled in the control box on top of the base of the drive, and enclosed for protection of the parts against dust, lint and dirt. The unit requires practically no more space than the standard spinning frame motor with conventional individual drive.



Left, a variable speed driving mechanism replaced the cones and shifting belt to drive calender on this picker; right, variable speed drive on slasher . . . . . .

The purpose of this drive is to vary gradually the speed at which yarn is wound on the bobbin, to maintain more nearly uniform yarn tension between front roll and bobbin, and uniform twist.

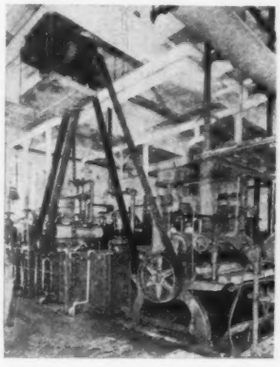
The motor is mounted on a sliding base operating vertically and moved up or down by a screw. Any standard motor, old or new, may be used. The screw is turned by hand when setting the speed of the frame for any count of yarn, and is operated automatically from the ring rail cross shaft when spinning. The driven sheave consists of a pair of discs, one stationary and the other sliding laterally on the shaft. Moving the motor vertically by means of the speed adjusting screw makes possible changes in the center distance between motor shaft and cylinder shaft. As the motor is moved downward, increasing the shaft center distance, the V-groove of the cylinder (or driven) sheave is expanded. Consequently, the V-block belt operates on a smaller diameter and the cylinder speed is increased. Conversely when the motor is moved upward, the shaft center is decreased, the V-block belt operates on a larger effective diameter on the driven sheave and the speed of the cylinder shaft is reduced.

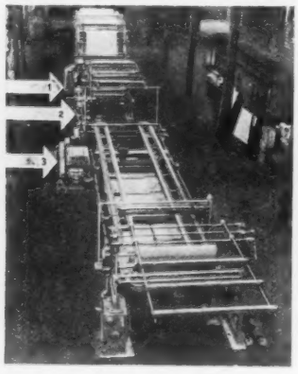
Warping and Slashing

Warping of cotton yarns may be more efficiently done by using a variable speed transmission to adjust the warper speed for varying conditions at this point of processing. Not long ago there was published in one of the trade journals the case of a complete failure to warp yarn at the usual speed. Reduction of speed by half doubled the production and the reduction was effected by degrees from the maximum speed while in operation by means of a variable speed transmission.

Slashing is another operation in the mill where means of varying the speed of operation is desirable. As a matter of fact it is essential at this

point, where various numbers of yarns and different numbers of ends are to be handled, as variables are thus introduced into the drying. Slashers are usually equipped with a belt and cone drum drive which is more or less crude and cumbersome. The conventional variable speed transmission may be used. The speed control unit may be conveniently located on the ceiling or floor or in any other desired position and driven from line shaft or individual motor. The illustration shows a ceiling installation, the constant speed shaft of the transmission being driven from a line shaft. From the variable speed shaft of the transmission, the belt drives to a set of three pulleys on the main shaft of the slasher, consisting of an inside pulley which is loose, a center pulley geared to a set of speed reducing gears, and an outside pulley, keyed to the main drive shaft. The transmission provides a 3.1 ration of speed range. A typical range may be from 50 to 150 yards per minute. When extremely slow speed is required, the belt may be shifted to the middle pulley on the drive shaft of the slasher, this pulley being geared to a speed reducer, as explained, when running the slasher at a speed of approximately three-quarters of a yard a minute, without in any way affecting the recommended minimum speed of the transmission, since the pulley on the variable speed shaft of the transmission, is as wide as the set of three on the drive shaft of the slasher. A convenient speed indicator, to show the exact yardage per minute that the yarn travels, may be used. The control of the speed of the machine is thus placed at the operator's finger tips.



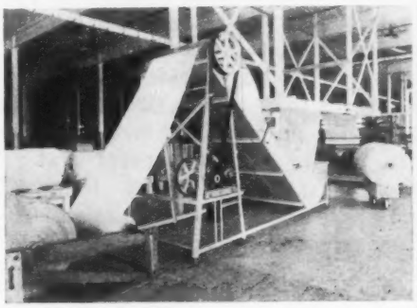


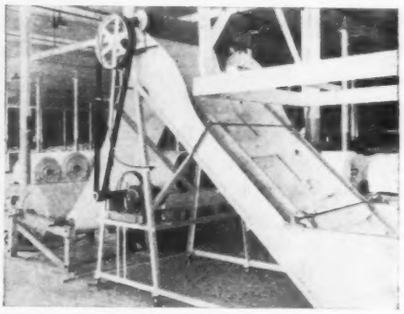
Left, on continuous dye machine and padder; right, on a Sanforizing unit . . . . . .

The transmission has already been applied to box and other types of looms, where a ready speed change might be desirable.

Variable Speeds in the Finishing Plant

In the finishing plant, controllable variation, adjustability, synchronization, and accurate maintenance of relative speeds, is very desirable at many points and quite essential at a goodly number of others. Plants doing a custom business are called upon to process a wide variety of fabrics of widely differing constructions, weights, and widths, and requiring many different finishes. Some may be processed at far greater speeds than others and it is poor business to try to process them all at any set speed unless they could all be handled at the highest speed some of them might permit. This being impossible, it behooves us to process them at the speeds suitable for each, and this may be done satisfactorily in many applications by the use of variable speed transmission in the drives of various processing machines and ranges.





Two views of the author's portable scray, evolved with the use of the variable drive as shown . . . . . .

The accompanying illustrations show some applications of variable speed transmissions to machines in the finishing plant. There are many other applications which limited space and lack of illustrations do not permit showing in this article; however, there are photographs of the application of a recently developed variable speed pulley to cloth scrays, which will doubtless find application also at other points where the amount of power involved is rather small and where space is limited.

Variable Speeds on a Portable Scray

Cloth scrays are usually fixed in position with the processing machines they serve, and their speeds are either synchronized with the machine served, or they are run at higher relative speeds and are stopped and started at proper intervals to maintain the desired accumulation of stock. In designing this particular type of portable scray, the writer sought a means of making it usable with a number of machines having different constant speeds as well as with others whose speeds are variable. Variable scray speed was of course the answer, but since weight and space had to be considered, the standard variable speed motors and transmissions were unsuitable. A descriptive circular on the newly developed variable speed motor pulley was received at about this time from a leading manufacturer of variable speed transmission, and unquestionably it was the answer to our problem. Use of these variable speed pulleys has proven their suitability for the requirements of this job.

It will be noted in the photographs that the variable speed pulley is mounted on the motor shaft and

drives by means of a wide face V-belt to a straight face receiving pulley on one end of a counter shaft. On the other end of the counter shaft there is a paper driving pulley which transmits by means of a flat belt the power to the second receiving pulley which is mounted on the scray feed roll shaft. The variable speed pulley comes as part of a unit which includes the bedplate for the motor, which bedplate is integral with the supports for ball-bearing counter shaft.

Handwheel adjustment of motor position in relation to countershaft increases or decreases the belt tension with the result that the movable member of the pair of cones forming the motor pulley is moved toward or away from its mate, thus securing the effect of increasing or decreasing pulley diameter. A spring with hand-wheel adjustment serves to control the degree of belt tension necessary for proper transmission of power involved.

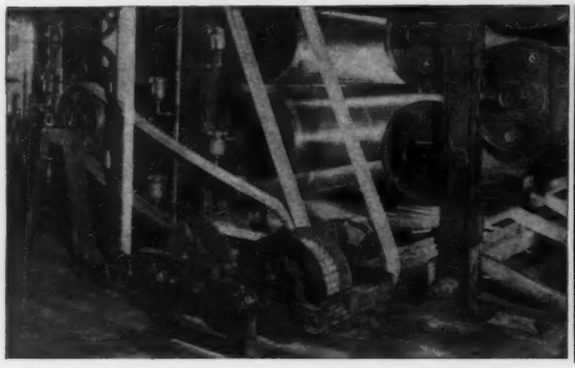
As these scrays were intended for use at any point, they were equipped with single phase motors which could be plugged into any convenient light socket. They have magnetic switches with push button control mounted on the frame at a point convenient to the machine operator.

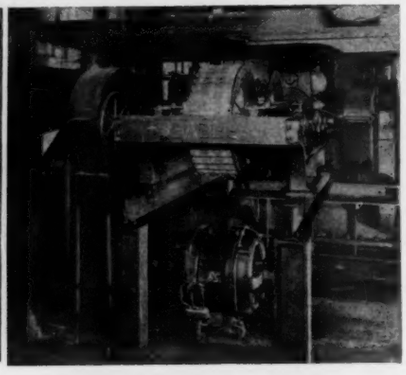
In simple drying processes for cotton piece goods, with fabrics of different weight and moisture content, it can hardly be expected to get similar results on all, at one unvarying rate of speed, unless temperature were adjusted to the needs of each case. It is not always practicable to provide temperature variation, and it is rather easy and relatively more inexpensive to use such a speed variator as this article has reference to, between the driving motor or line shaft, and the dry can set to be driven, for the purpose of varying the rate of speed at will. One of the photographs, while not a typical drying can installation, illustrates the interposition of a variator in this case.

Another photograph shows a variable speed transmission between the driving motor and the sideshaft of a continuous dyeing machine. A neat and compact arrangement is secured by using chain drives from motor to variator, and from variator to sideshaft. This arrangement was inspired by a need to economize on floor space. The use of the variable speed transmission in this drive enables the dyer to operate at from 25 to 100 yards per minute as desired, without stopping.

In another photograph the other side of the continuous dyeing machine is shown, as well as the padder which must be operated in range and at speeds synchronized with the vat sections of the machine. Here, with the variable speed transmission, and by means of the hand chain seen in the foreground, such relative speeds may be easily and quickly made without interfering with operations, as the tension of the fabric between the units may require. The fabric being processed enters the padder at the extreme right of the picture, passes from the padder over a roll and down into the first bath compartment, from there up and through the first nip rolls (clearly seen in picture) and then successively through several baths and out to a frilling folder which plaits the goods into boxes.

Occasional finishing requirements make it essential that one or more stacks in a set of drying cans be operated at relatively different speeds from the others. In another photograph the variable speed transmission is seen providing a satisfactory method of doing this. Later installations than the one shown have the transmission installed with the body of the apparatus under the cans, and with the belted pulleys extending out, to save floor space and isolate the unit for safety, etc. The later installations are covered with removable covers. The idea has also been applied to the separate stacks of a large set of drying cans.





At left, on a set of dry cans; at right, between driving motor and sideshaft on continuous dyeing machine . . . .

On sanforizing ranges it is necessary to provide a means of keeping the relative speeds of the tenter and feed rolls between the tenter and Palmer accurately adjusted. The lack of such control at this point would interfere seriously with the results obtained at the delivery end of the range. One of the photographs gives a clear idea of the relative positions of intermediate feed rolls and Palmer, and the mounting of variable speed transmission by which relative speeds are maintained by control from the floating roll, indicated by the arrow, through a suitable sprocket and chain arrangement in connection with round belt and grooved pulleys. Another photograph shows a complete sanforizing range on the shop erecting floor, with arrows 1, 2, and 3 indicating the position of the variable speed transmissions for the various units. The fabric enters the range at the end shown in the foreground and passes successively through the units to the delivery reel at the other end.

Sidney Paine Discusses Mill Methods

at Meeting in Greensboro; other practical discussion

Reported by Robert W. Philip

THE last of a series of practical discussion meetings conducted by divisions of the Southern Textile Association during the latter part of the year was held at Greensboro, N. C., on Saturday, December 9th, by the Northern North Carolina-Virginia Division. It was featured by a splendid attendance and interest; the election of officers—and a thought-provoking talk on "Machinery and Methods under the NRA", delivered extemporaneously by Sidney S. Paine, president of the Textile Development Co., of Greensboro, and one of the country's leading mill practice engineers.

Address on Methods under the NRA

By Sidney S. Paine

The meeting was in charge of Chairman Batson, who introduced Sidney S. Paine for a discussion of "Machinery and Methods under the NRA". Mr. Paine, speaking extemporaneously, drew attention to previous periods in this country's history when depressions raged, and, as to present conditions, expressed the belief that "we should talk about and boost the NRA", though there are some features of this tremendous national program that everyone does not understand.

In taking up his specific subject of textile mill methods under the NRA, Mr. Paine listed ten points which he then discussed briefly and interestingly. He declared that some of them had been induced by the new conditions, but that some of them were fundamental, and well known. His list of ten points for thought follows:

1. The cloth is the highest boss.
2. The standards of one mill are not necessarily the standards of another mill.
3. The most important thing to find out is Why.
4. Anyone can see the obvious, but often the hidden cause controls the situation.
5. A great many standards are set up for the purpose of covering something up.
6. A double shift should not be run on the same labor schedule as a single shift.
7. Some 40-hour shift practices should be different from 55-hour shift practices.
8. There are many things that cost money besides wages.
9. Standardization of machine practice is vitally important.
10. The best place to get inspiration is in the graveyard.

Taking up these ten points in order, Mr. Paine considered first the statement that, *"The cloth is the highest boss"*, saying in part:

The Cloth is the Highest Boss

"A good many mills, in fact all mills, claim they study the requirements of the cloth carefully, but it has been my observation that the study of cloth requirements has been superficial. I can go into any mill represented here, and the superintendent or overseer will tell me, 'We must have a strong yarn—our cloth requires it'; they say that whether or not the cloth itself actually requires it. For example, some years ago I spent considerable time in a mill that was making a heavy fabric with a high sley and pick. We tried various draft organizations, and finally induced the superintendent to 'go crazy'. We put a spinning frame, single roving, on a draft of 20. That is 'pretty crazy'. The spinning did not run very well, and the yarn strength was weaker than usual, and, putting this yarn in the cloth, the loom ran not too badly, but we were amazed to find that the cloth strength was just exactly as high as it had been with the regular yarn.

"That sounds strange, but think a moment and you will realize that with a heavy pick goods the warp is so interwoven by the filling that the warp fibers do not slip in breaking the cloth, and the strength of the cloth followed the strength of the cotton and not the strength of the yarn. I believe it is safe to say that on heavy count goods the strength of the cloth follows more the strength of the cotton than the strength of the yarn; while the reverse is true on light constructions.

"Some mills are operated as one-product mills, or two-product mills, but the average cotton mill has a great many different kinds of cloth. One mill has a filling-faced goods in which the filling must be smooth and very even, and very good, and the warp has no requirement of appearance but solely the requirement for strength and operation. And the same mill will have square woven fabrics, and possibly some warp-faced goods. Yet they will have one draft organization. They say, 'This is our draft organization'. They have one yarn to meet all requirements; they try to build one yarn, with the possible exception of twist, to meet all requirements.

"I say that the cloth is the highest boss. We do not break down our cloths sufficiently and find out the real cloth requirements in building up practices in our mills."

Standards Vary With Different Mills

Going to his next point, that *"The standards of one mill are not necessarily the standards of another mill,"* Mr. Paine continued:

"I go into a mill and have many of the same questions asked of me: 'How long a draft can you run with single roving?' and 'how fast can you card?' and 'what loom stoppage do you get on such-and-

such a cloth?' These questions are common; but I think they are unwise to generalize in. My answer always is, 'Let me see your cloth, and let me see your machines,' because one mill cannot always do what another mill can do. I will give you an illustration: We have all been very much interested in recent years in long draft, with the new systems. The theory of long drafting is that we should have as slack a twisted roving as possible to draft smoothly and evenly. Some time ago I was in a mill on comparatively fine work and they had the Washburn wooden middle roll, and a soft-twisted yarn and roving. They were trying some tests on long draft, and I found the work was running poorly, the end breakage in the spinning was very bad. Somebody said, 'Let's analyze the situation', and we did. On a long draft system—whether you have the cots, the four-roll or the combination—the long draft elements control the drafting. When you have the three rolls on an ordinary spinning frame, even with the light middle roll, there is not as much control. We thought that we might utilize twist as a control of the draft instead of the cots or multiple rolls. We tried more twist, not in the yarn, but in the roving, and found that, effectively, the roving twist did control the drafting of the roving in the rolls, something directly opposite to the generally accepted practice in most mills, and yet it worked well at that place. The end breakage was divided by a little more than two."

S. S. Paine

Find the Reason Why

Discussing next his third point that *"The most important thing to find out is the reason why,"* together with his fourth point that, *"Anyone can see the obvious, but often the hidden cause controls the situation,"* Mr. Paine told of a mill where they "were very conservative on their spinning drafts, and the finished roving was very light. A test was run with heavier roving to make an obvious saving on the speeders. The mill put one side of a spinning frame on the heavy roving and one on light roving. The end breakage on the side with the heavy roving was three and a half times as much as on the side with the light roving. The obvious answer was that the test was a failure, one man, though, was of an inquiring mind, and looked into the matter further, and noticed a very slight jumping of the spindles of the frame on the side of the heavy roving. He stopped the frame and took hold of a band and turned it around, and noticed that every four revolutions of the cylinder the band made one complete roll. The knot was very clumsy, and when the band on that one side, coming from the top, struck the spindle it jumped. The overseer changed the sides—putting the heavy roving on the side where the lighter roving had been, and vice versa—and then the coarse roving ran much better than the fine and as well as the fine roving had run on the same side. The real reason, therefore, was not the obvious, but the condition of the band, which was not obvious in making the test."

Mr. Paine then told of another incident in his experience as a survey engineer. The mill, he said, was not able to reach the standards of loom stoppage which he had set, and, when he returned to the mill, the mill official "took me to task, and I said, 'If you had read your report you would have seen where the tension and lay on the speeders caused more of your loom stoppage than anything else.' I went in and took a wrench and put the right lay gear on and set the cone belt right on the cone, and when the new yarn got to the weave room the loom stoppage was 25 per cent less with no other change being made. The thing we must always do is to find the real cause and not rely on the obvious."

"Court-Plasters" for Covering Up Sores

The next point was, *"A great many standards that a mill has set up are for the purpose of covering something up,"* and discussing this, Mr. Paine said: "If there is any statement in the world that you could make that I would doubt it would be for you to tell me that you are obliged to do something to make the work run well, because that is the most commonly used excuse for mal-practices. I have seen two mills using full-inch cotton, Strict Middling, running the doffers at 4½ turns and less because they had to get such a slow speed to make a clean-looking yarn. The speed of the card was used to cover up a very poor condition of the machines themselves. If you walk through a mill and find anything wrong, the work running badly, and the answer is, 'Let's put in another tooth of twist'—99.9 per cent of the time the twist is not the thing that is necessary, but it is something else further back and the twist is put in to cover it up.

"I have in mind two mills with the same kind of looms, making the same fabric. Mill A uses 1-inch cotton, with three processes of speeders and runs the looms 155 picks a minute. Mill B uses 15/16-inch cotton, with two processes of speeders, and runs the looms 168 picks per minute. The loom stoppage in the fast mill is less than half of what it is in the slow mill, and yet the superintendent of the slow mill will tell you, 'If we increase the loom speed the loom stoppage will go away out of sight.' That's not the reason. It's only a court-plaster to cover the sore up."

Double-Shift Labor Schedules

The sixth point was that, *"A double shift should not be run on the same labor schedule as a single shift."* Mr. Paine pointed out that, "when you have a double shift with the people doing the same work on both shifts you destroy the privilege of placing responsibility, and you invite alibis. Take oiling, for example: If you have two oilers on a set of speeders, it is very easy for the fellow on the day shift to skip a couple of oil holes and say, 'The night man will catch them;' then if any part of the speeder gets stuck, nobody knows who did it. The same is true in other departments.

"On speeder tenders, or spinners, or weavers, I don't think it is a good idea to have both sets of la-

A STIMULATING talk by Sidney S. Paine, a brief practical discussion period, and election of officers, featured the division meeting held in Greensboro last month. S. T. Anderson is new chairman of Northern N. C.-Va. division of Southern Textile Association, and James A. Bangle vice chairman. J. O. Thomas, re-elected secretary. . .

bor do all of the cleaning. I would rather have the day hand clean alternating frames, and the night hand do the same thing. I have seen this carried further; on card grinding, with one shift setting the fronts and the other shift setting the backs. That's going too far, but my point is that I would rather split up the work, in the case of the oiler, oiling only half of the speeders, and put up half the roving and take some other responsibility on himself; but have one man responsible for one thing."

40-Hour Shift Practices

Mr. Paine turned next to his seventh point—"*Some 40-hour shift practices should differ from 55-hour shift practices.*" He took up the subject of card grinding, saying, "I suppose a very large percentage of cotton mills grind their cards once in 30 days, without any consideration of the grade of cotton, how much dirt the clothing has to take out, the weight of the sliver, the speed of the card, or anything else. I hope some day the mills will study their carding and find out how often a card should be ground." Mr. Paine said this subject had been discussed in one of the association meetings of which he had read a report, and suggested that card grinding offered a good illustration of the things that might be studied to determine how the practice should differ under the 80-hour week, instead of 110-hour week.

"Cleaning," he said, "is a very important subject. On almost any machine in the mill we have gotten into the habit of cleaning once a week or once a day, and I think we could make a very substantial economy by studying carefully the actual cleaning needs, the necessary frequency of cleaning and doing general work. Some mills have gone so far as to put on an extra shift for cleaning, especially overhead. When you stop a machine to clean it, running 40 hours, the time lost is more important than it was running 55 hours."

Saving Dollars Other Places than Payroll

The eighth point listed by Mr. Paine was: "*There are a great many things that cost money besides wages,*" and in discussing this he said, "We have all gotten into the habit of asking the question, 'What is the labor cost?' or 'How many looms to the weaver?', or 'What is the front roll speed?', but we must pay more attention now to other things; power, for example." He told of observing once an incident where it was impossible for two men to turn a card over, so badly was it out of line. And of another instance where a power test on speeders showed that one speeder took three horsepower more than another. He mentioned the power savings possible through lining and leveling the shafting. "You can throw away just as much money on power as you can on labor cost," he said.

Mr. Paine next discussed the subject of supplies, declaring that a mill that has a good supply room with a supply clerk in charge has a much lower supply cost than a mill which doesn't have a clerk. "The upkeep of the machinery is a very important thing," he said, "a machine that is kept up doesn't stop as much as one that isn't—and machine stoppage plays more havoc now than it did last year."

Standardizing Machine Practice

As to Point No. Nine—"*Standardization of machine practice is vitally important*"—Mr. Paine said, "I think we should all go as scientific as we can on standardization. You go into the weave room and you will go to such and such a loom, on such and such a fabric, and notice the loom setting. That fixer feels his looms are running better with those settings. Then you go to the next set of looms, and grant the next fixer the same privilege of setting his looms, and so on, and the net result is you have almost as many settings on the same class of fabric as you have fixers in the room. There is a best setting for every loom. I claim a mill should go rather rabid on standard settings; the same thing on almost everything in the mill, I will not take the time to enumerate them now."

Citing machine speed as an example of possible standardization, Mr. Paine said, "We will walk through a department and say, 'What is your speed?' and we will be told, but the mills I have been into have tremendous variations in speeds, especially on mechanical drives instead of individual motors. It is nothing to find a variation of 30 picks per minute, or 15 turns on spinning front rolls. We cannot afford to lose those extra picks and revolutions per minute."

Getting Inspiration from the "Graveyard"

The final and tenth point in Mr. Paine's list was: "*The best place to get inspiration is in the graveyard*". He declared that "if I could only get from you gentlemen and from your associates a record of the tests you have run and found have failed and thrown out the window and buried in the graveyard, I should have 90 per cent of all of the progress we will make in the cotton industry for the next 20 years. In many mills, if anybody makes a suggestion, the almost universal answer is, 'I tried that fifteen years ago, and it won't work'. Well, it didn't work for some reason, and as I said, the reason is not always the obvious reason. All of the progress, very nearly, that has been made in the last ten years has been made with things that had been thrown away." He cited long draft as an example, pointing to the current interest in long draft on speeders as well as on spinning, and cited that the first patent granted on long draft slubbers was dated 1870.

"Go to your graveyards," Mr. Paine urged, in conclusion, "dig up your records you have tried yourself, or that your neighbors have tried, and try them again, and isolate each variable, and I will guarantee you will make more progress than with anything else you can do."

After Mr. Paine's remarks, Mr. Batson led the meeting in a brief round-table discussion of problems of machinery maintenance under the new schedule of hours. During the discussion he called on Herman Cone, treasurer of the Proximity Mfg. Co., Greensboro, who was present, and who responded as follows: "I am mighty glad to be here with you, and I think it is particularly gratifying to see so many fellows from the different mills getting up and giving the others the benefit of their experiences, particularly at this time when the methods seem to be changing. I want to congratulate you upon the work of this association, and I am glad to see so many of you men here."

Discussion of Maintenance Methods Under the New Hours

Mr. Batson brought up for discussion one point mentioned by Mr. Paine: that of oiling the machinery under the schedules provided by the code. H. H. Colbert, overseer of spinning at Lynchburg, replied that now he oils once a day on the added shift, just as he did on the single shift, so that the machines get more oil than before.

L. V. Andrews asked whether one oiling a day is enough. He said he is "at present oiling once a day, except when the warps run out, when we oil every part." J. V. McCombs said in one particular department he maintains the same oiling system on the first shift. Mr. Batson stated that he thought the point which Mr. Paine brought out about dividing the duties of oiling so as to have different shifts do different things was a good point. C. F. North,of Proximity, said, "We have not changed our oiling system on the first shift. We added a man on the second shift who oils all the fast-moving points."

W. H. Gibson, Jr., general superintendent, Jennings and Mansfield Mills, Lumberton, N. C., explained that, "We had one oiler on the day shift, and since we have gone onto two shifts we put on an extra oiler, but we also gave them new oil cups and cut down on the size of the spout in the cup. In addition, we put on an extra man temporarily. Every time a warp comes out we clean with kerosene thoroughly, and we find that our supply bill has been reduced about 20 per cent. It is particularly worth while to have an oil cup with a smaller spout, so the oil goes in the hole and not on the floor."

The chairman suggested that mills make tests to determine whether the oils now being used are exactly what are needed to supply the proper lubrication, and indicated that the companies supplying oils to the mills should be glad to assist in making these experiments.

"A warp usually runs from about seven days on coarse work to six weeks on a broadcloth," said J. V. McCombs. "Is every time a warp runs off often enough to oil a loom?"

M. W. Hayden, of the Carolina Cotton and Woolen Mills, asked whether it is necessary to oil motors and shafting any oftener under the new running schedules. W. J. Jennings, overseer of carding, Minneola Mfg. Co., Gibsonville, N. C., said that before the eight-hour shift they put up their cards a card a day, with four sets of grinders, and it took 25 days to get around; and now they put up four cards a day, and it makes the cards run a little longer, but that the cards run just as well as before.

The chairman reverted to Mr. Hayden's question about oiling motors and shafting. J. O. Newton asked whether they did not use as much oil while standing as while running. J. V. McCombs declared he did not believe it practical to establish standards of oiling for motors; that motors around cards will get a lot of lint in the motors and consume more oil. That motors should be oiled and drained according to the department in which they are located, and other conditions. He said he drains the motors every 90 days. A ring oiled bearing, he said, will run about three months to the oiling. He said they try to have their shafting oiled once a month and the bearings drained twice a year with a speed of about 300 r.p.m.

Left to right, S. T. Anderson, the new chairman; Culver Batson, the retiring chairman; and J. O. Thomas, re-elected secretary . . . . . .

Mr. Hayden declared here that in his plant—which is a finishing plant and not a cotton mill—they oil the motors once a month, using a comparatively light oil, and oil the shaft once a year. He said he has not had a motor burned out in two years, and just one hot bearing in two years. His shaft speed is about 200 r.p.m. As to oil drip, he said he uses pans under the motors and bearings to prevent this, and washes the bearings in the motors about once a year, and changes the oil in the shafting about every three years, washing out with kerosene.

Inspecting Machinery

S. T. Anderson of Spray stated that in the cotton mills they oil the motors once a week and blow them out, following the same rule throughout the mill.

The chairman next asked what changes were being made as to inspection of machinery, overhauling, etc., under the new hours. L. V. Andrews of Martinsville replied that "we are planning on doing the same thing in the picker room as before, taking out eveners, etc. We try to have a weekly inspection on the cards; either the overseer or myself has the doors left down, and the clothing and other parts are inspected carefully. If we find a card that is dull, we attend to it right away.

"I think a lot of us superintendents are going to have to change our methods. I used to meet the boss

(Continued on page 46.)

The Use, in Finishing Cotton Piece Goods, of

Fillers, Weighting, Hydroscopic and Antiseptic Materials

(Part Two—Continued from December Issue)

By J. Andrew Clark
Chief Chemist, Dutchess Bleachery, Inc.

LAST month Mr. Clark began, in his series of the basic raw materials used in finishing cotton piece goods, a discussion of Fillers, weighting, hydroscopic and antiseptic materials. Here this discussion is continued, with magnesium sulphate and chloride, glycerine, starch, mildew, etc., among the subjects covered . . . . . .

WITH the mineral fillers, then, there are available materials which not only fill the cloth but also add considerable weight. When increase in weight is desired with less filling effect, various salts, glycerine, glucose and such are used although these are not entirely without some filling action. Most of these are hydroscopic and owe their weighting effect to their ability to absorb moisture from the atmosphere. Exceptions to this are the examples of magnesium and sodium sulphate commonly known as Epsom and Glauber's salts respectively, each of which is an efflorescent crystalline salt containing over 50 per cent water of crystallization, much of which may be lost on exposure to dry air or regained from moist air. Easily soluble in water, these salts are readily absorbed by the fabric to give a somewhat firm and harsh feel when first processed, but which becomes somewhat mellow on conditioning by cially if small amounts of magnesium chloride are also present, either as an impurity or an added ingredient. This type of finish is generally used with magnesium chloride or calcium chloride to help it retain softness and finds only limited application in finishing such goods as flannelettes for instance. Magnesium is an alkaline earth metal and reacts with soap and fatty acids to form insoluble magnesium soaps similar to the reaction of calcium or lime salts with fats, which makes it unsuited for use in appreciable quantities for back-filling.

Magnesium Sulphate and Chloride

Magnesium sulphate and chloride are obtained chiefly from various double salts found in the Strassfurt deposits in Germany. This chloride is obtained from the mother liquor as a by-product in working carnallite, the double salt of potassium and magnesium chlorides for separation of potassium chloride. The most important sources of magnesium sulphate are the minerals kieserite and kainite, the former being magnesium sulphate with one molecule water of crystallization, the latter being a triple salt of potassium sulphate, magnesium sulphate and magnesium chloride with six molecules water of crystallization. Tremendous quantities of these minerals exist and the price of the marketed article is low.

Magnesium, Calcium and Zinc Chlorides

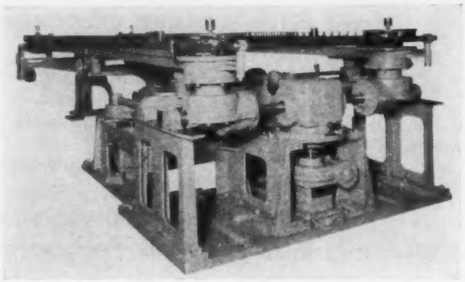
Magnesium, calcium and zinc chlorides are examples of deliquesent metallic salts, by which is meant salts able to absorb from the atmosphere sufficient moisture in which to dissolve. Magnesium chloride is a colorless crystalline salt, easily soluble in water, and is used to some limited extent with magnesium sulphate or Epsom salts as a softener. It has a more extended use, however, as an ingredient in warp sizing mixes, although it is highly condemned by various authorities on the ground that decomposition of the salt during singeing of the goods liberates free hydrochloric acid with subsequent tendering of the cloth. This liberation of free acid was formerly utilized in carbonizing wool for burr and cotton removal. Cotton or other vegetable matter treated with a 13 degree Tw. solution and then heated to 140-150 degrees C. is destroyed and turned black, while wool is damaged above this temperature. This action, then, explains in some measure the tendering of cloth sized with mixes containing magnesium chloride during singeing. Local overheating by the gas flames or singe plates would give correspondingly tender areas.

Calcium chloride is similar to magnesium chloride in its hydroscopic properties, but does not decompose with heat to the same extent. It is a white hydroscopic salt, which ordinarily reaches the market as a by-product from chemical industries such as the ammonia process for soda manufacture and the recovery of ammonia from gas works. It is marketed in several forms and strengths such as flake, powder and solid, 75-80 per cent and liquid at 40.5 degrees Be. Large amounts are used annually in preventing dust on dirt roads, where the chloride by its hydroscopic action maintains sufficient surface damping to prevent dust rising. It is also used extensively as a brine in artificial ice

manufacture and as an anti-freezing solution. The fused material, in addition, is widely employed as a drying medium for gases.

Concentrated calcium chloride solution reacts with starch to form a soluble, extremely adhesive, gum-like material which, on cooling, sets to a firm rubbery mass. Various modifications of the mixture are made and sold as weighting gums. These are often made with mixtures of calcium and magnesium chlorides as well and may contain as much as 50 per cent of the metallic salts, with a specific gravity of approximately 1.5. An example of such gum is one made by a large eastern finishing plant which contains 1066 pounds of calcium chloride and 266 pounds corn starch in making a mix of 2,800 pounds. This product is made by simply boiling the starch in a small amount of water after which it is run slowly into the boiling chloride solution and boiled for an hour or so; then it is run into barrels.

This salt reacts with magnesium sulphate and should not be used in mixes with it unless the calcium sulphate formed is desirable. This type of gum can be used, however, in backfilling or other heavy mixes with softeners containing free fat, for while the calcium combines with the soap part of the softener, sufficient fat remains to produce the required softness. The hydroscopic nature of these salts, also, causes them to act as ofteners to some extent.



Photos, courtesy H. W. Butterworth & Sons Co.

The delivery end of a tenter

These metallic chlorides are frequently incorporated in warp size mixes to add weight and pliability to the yarn, and however desirable to the weaver are a detriment to the finisher. In the first place, heavy mixes may contain enough deliquescent to maintain the cloth sufficiently moist to promote mildew growth on warm storage and, secondly, they offer the hazard of tender goods when singed. In addition, most bleachers are troubled enough in kier boiling with water containing some natural hardness, or go to considerable expense in softening this water without having to contend with cloth saturated with additional amounts of these elements.

Glycerine

Glycerine, because of its hydroscopic nature, is capable of acting as a softener by swelling of the cotton fiber and is no mean weighting material in that it is capable of absorbing approximately 30 per cent of its weight of water on exposure to an atmosphere of ordinary humidity and can absorb considerably more from damp air. One per cent in the finishing mix is usually sufficient to give a pronounced softening or suppleness, although 2 per cent is commonly used in such finishes as damasks and to a lesser extent in finishing backfilled linings. The description, manufacture and commercial grading of glycerine was covered in an earlier article of this series.

Glucose, the manufacture of which was also described in the same article mentioned, is used for both softening and weighting, and produces a full, thick and mellow hand. Its reducing action on dyes at the elevated temperatures used in finishing makes it objectionable as an addition to mixes intended for colored goods. Added to whites, it may also be a source of annoyance when Indanthrene blue is used for tinting, by causing off-colored laps. Glucose is considerably cheaper than glycerine and is commonly substituted for or replaces it, and like glycerine is not used to any great extent in back-filling. It finds use in finishes with Epsom salts for flannellettes to give a more mellow hand than can be obtained by the salt alone.

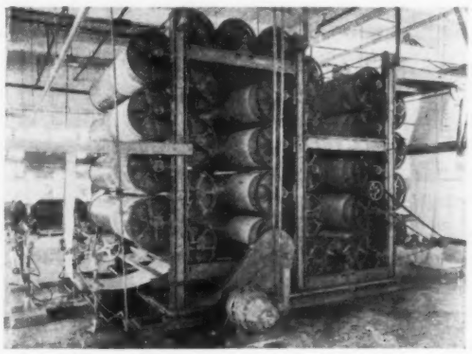
Starch

While starch is not commonly considered as a hydroscopic agent, it is interesting to note that this material has essentially the same shaped regain curve as cotton with practically twice the amount of regain moisture. Walton, *American Dyestuff Reporter*, June 11, 1928, points out, in this connection, that slightly more water regain is retained in the starch film brought from saturation to 70 per cent relative humidity than when the material is conditioned from the dry state. The values quoted are 19.5 in the first case and 17.2 per cent for the second, the temperature being 20 degrees C

This authority also points out that both cloth and starch absorb less and are capable of holding less regain water as the temperature rises, and offers the suggestion that this may be one reason for the growth of mildew which occasionally occurs in goods shipped to tropical points, in that cloth contained in sealed cases becomes "effectively moister" as the temperature rises when no means for the escape of the superfluous moisture exists. This condition of course, facilitating mildew, is highly undesirable and is guarded against by both finishers and weavers who incorporate antiseptic materials in the finishing mixes or warp size to inhibit this growth.

The use of starch and hydroscopic materials in finishing and warp sizing is not without some hazard from mildew growth, the prevention of which has long been recognized as a responsibility of the weaver and finisher. The grey mills are held responsible for the prevention of this damage in the grey until delivery to the finisher who then assumes responsibility for its prevention during and after finishing. Mildew is a fungus growth of vegetable life characterized by the appearance under the microscope of innumerable and extremely fine hair-like filaments called mycelium, with or without spores. Various forms and color varieties exist which also show differences in their resistance to sterilization. This seems to be influenced by the manner of their reproduction and life cycle. Those types which

simply reproduce by breaking up into new colonies are relatively easy to kill, while the spore-bearers are the most resistant. It is from these spores that the most danger occurs since they act as seeds and are either dormant, resting stages in the life cycle of the plant, or cells for reproductive purposes, resisting high and low temperatures. One authority claims them to withstand boiling and freezing temperatures although killed in a half-hour at 5 pounds steam pressure, while another claims boiling water will accomplish this. In any case, however, it is questionable if the spores are killed much below the boil and then only after some little time. It is not the purpose of this article to discuss the various kinds of mildew at length, but to simply point out that the danger of mildew is always present through the presence of spores even though the evidences of mildew itself are not apparent, and that with favorable conditions, these may develop within an amazingly short time into a vigorous growth. Protection against one type, furthermore, may fail to protect against more resistant types which should be guarded against by the selection of suitable antiseptics.



An independent drying machine

The development of mildew depends on the presence of food, air, warmth and moisture, and conversely, the absence of any one of these factors will arrest the growth, causing the plant to revert to the spore or dormant stage. Being only dormant, they develop again when the needed factor is supplied. Food and air are present in all fabrics in sufficient quantities and even if deficient in starches, the cellulose itself may be attacked. Heat and moisture are commonly the variable conditions, and it is usually these which promote or arrest the mildew growth. Experience shows, as we should expect, most damage occurs in the summer months during the period of high temperatures and humidities. Wet cloth in process at the finishing plants during this period is especially liable to mildew when held over the week-end in this condition, but in the cooler months, mildew is practically unknown. An interesting example of the effect produced by changed temperatures and humidity was one in which some linen dresses sewed in New York City were sent to Cuba for embroidering, following which the dresses were repacked and returned to New York. On receipt, the goods were found to be lightly spotted with mildew, yet no trouble had been previously observed when handled entirely in New York.

Mildew

Mildew not only causes trouble from the formation of colored areas and the development of a disagreeable musty odor, but may actually attack and destroy the cotton itself. The growth of this fungus is characterized by the liberation of organic acids, which may eventually react with the cotton to form hydrocellulose. Should this be then treated with bleaching solutions, it is converted to oxycellulose. The luster of the fabric is permanently destroyed when the cellulose is so attacked and is incapable of absorbing dyes in the same manner as the balance of the cloth.

Mildew Prevention

From a consideration of the life cycle of mildew, then, it is found that prevention of mildew depends on the presence of sufficient antiseptic to kill both the mycelium and spores present as well as any spores which may later fall on the fabric. During the last ten years, the accumulated results of research on mildew growth and prevention have developed some interesting facts. It has been found, for instance, that many antiseptics are highly selective and while capable of killing some types, fail to protect against others. Again, some are apparently unable to kill spores, but do effectively protect the fabric by destroying the fungus after the spores start to develop. Practical considerations limit the selection to relatively few of the many known antiseptics. Such limitations are, in general, pronounced odor, color effect on dyes, volatility, insolubility, selective action and cost. Recognizing the inadequate protection secured by the use of the more commonly used antiseptics, research workers have sought far more effective materials. Morris, (*J. Text. Inst.* 1927-18,99) claims exceptional toxicity for thallium carbonate, para-nitrophenal and 2:4:6 trichlorophenol. The first, however, is quite expensive, the second develops a yellow color when neutral or alkaline, while the third is pungent and volatile, conditions which practically remove them from use. He also reports the formation of a new compound, which is salicylanide, formed by the combination of aniline and salicylic acid. While this product is only sparingly soluble in water, .005 per cent is claimed to be effective. Other claims are that it is non-volatile, non-odorous, colorless and reacts neither with dyes nor cotton.

Burgess, *Am. Dyestuff Reporter*, 631, Sept. 1931, claims that of 150 materials tested, only sodium fluoride, sodium silico-fluoride, Shirlan NT, and b-napthol are suitable for commercial application in checking or retarding mildew. Metallic compounds such as boric acid, borax, zinc chloride and sulphate, copper sulphate, mercuric chloride and the various fluoride compounds comprise one class. Boric acid and borax are, at best, only mild and of doubtful value. The former, moreover, reacts with magnesium salts to lose its protective value. Zinc chloride and sulphate are colorless, cheap and easily available, while also offering adequate protection. Commonly used in warp-sizing, they are not generally used in finishing. The chloride is hydroscopic and may affect the finish and as a con-

sequence, is mainly used in Epsom salts finishes. The sulphate, however, is not hydroscopic and is, therefore, not open to this objection. Both salts on the other hand, are reported to be skin irritants, and care should, therefore, be used in their use, which should be restricted to fabrics not intended for personal wear. One half to one per cent of the mix is generally considered sufficient, although in a recent publication, Bean claimed as a result of investigation, that 8 per cent on the weight of the starch itself was necessary for complete protection.

Copper sulphate is a blue efflorescent crystalline material extensively used in European warp sizing, although its use is open to serious objection for general use. As a catalyst, traces are highly objectionable in goods interested for the rubber trade, with .00025 per cent the permissible limit in finished goods. It is desirable, therefore, to have the initial amount before bleaching as low as possible. During the bleaching, moreover, traces of this metal accelerate the reaction with either hyperchlorite or peroxide and at best, is open to suspicion of being a potential source of oxycellulose formation during this operation. It is not suitable for finished goods since the salt itself is colored and also has a dulling effect on most dyes. One-half per cent of copper sulphate on the weight of the starch is sufficient for protection.

Mercuric chloride is rarely if ever used in cotton finishing, although its use is reported to a minor extent in the silk industry. It is highly objectionable because of its poisonous nature and its reaction with albuminous materials.

Sodium fluoride and the various fluoride complexes such as sodium silico-fluoride are most satisfactory over a wide range of conditions and are extensively used in America. Three per cent on the weight of the starch is sufficient. One part in a thousand of mix, however, will prevent the materials from fermenting. These compounds are stable and effect neither cloth, finish nor colors and are available at satisfactory prices.

The various organic compounds proposed for use as antiseptics in finishing are very numerous, a detailed description of which would be beyond the scope of this article. Phenol and its various derivatives have received considerable attention from investigators. Phenol and the closely allied cresylic acid are powerful antiseptics and can be used satisfactorily in most classes of goods when the odor is not objectionable. One half per cent on the weight of the starch is required for protection.

Salicylic acid is a powerful antiseptic derived from phenol, of which ¼ to ½ per cent on the weight of the starch is sufficient to prevent mildew. It is only slightly soluble and must first be dissolved in hot water before adding to the mix. Objection to its use is the fact that it develops color in acid solutions and loses toxicity in alkaline solutions through the formation of the sodium compound which has very little value for this purpose.

Formaldehyde or formalin is sold commercially as a 40 per cent solution and is a powerful antiseptic. It is a pungent volatile liquid which is limited because of this to use in cold mixes and should only be added to such mixes after the starch has been cooked and cooled, although even then, its value is probably lost in drying the cloth on either cans or in the hot frame, since only ¼ per cent on the weight of starch is used. It is, however, used satisfactorily in preserving finishing mixes and specialties in the finishing room which, of necessity, may be kept on hand for some time.

Many new compounds have been proposed, some of which are quite satisfactory. The anilide of salicyclic acid, for instance, is claimed to be very effective with none of the objections of salicylic acid.

Turpentine used commonly to the extent of 1½ per cent of the mix is also used in American practice and not only acts as an antiseptic but also minimizes foam effects. The odor, however, may be somewhat noticeable and, therefore, objectionable in some fabrics.

Finishers are thus enabled to select, after consideration of the protection needed and the service requirements of the finished fabric, those antiseptics which offer the best money value for the purpose intended.

(The next installment of this series by Mr. Clark, covering the basic raw materials used in the finishing of cotton piece goods, will discuss a number of miscellaneous products which have not been taken up in the first eight installments already published.—The Editor.)

Cotton Exhibit at Smithsonian Institute

America's newest cotton fabrics for fashion wear are illustrated by a new collection assembled by the Cotton-Textile Institute for the Institute's permanent display in the United States National Museum (Smithsonian Institute), Washington, D. C. The collection is now on view in the textile hall of the Museum assembled in three large display cases. The cottons are arranged in harmonious color groups to show each individual fabric to best advantage. Museum officials report that the collection is attracting great interest and much favorable comment from visitors. American cottons have been on exhibit at the Museum with the co-operation of the Cotton-Textile Institute for several years past. In that time millions of visitors have viewed the cotton exhibit.

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Plans for National Cotton Week, May 14-19

Plans for the 1934 promotion of National Cotton Week, the week of May 14-19, are now being developed by the Cotton-Textile Institute. The New Uses Section is working with advance designs for the official poster which, as heretofore, will be furnished by the Institute to retail merchants, wholesale houses and others participating in the observance.

While the event is still several months in the future, the Institute recommends that advance consideration be given by stores to plans for the week. Reports to the Institute indicate that best results were obtained from this year's observance by establishments which set aside on their merchandising calendar the third week of May for comprehensive promotions of cottons. Such early preparations enabled them to take full advantage of the suggested program of merchandising features issued by the Institute.

Progress in Administering the Textile Codes; Group Action Foreseen

In so fast-changing a picture, this review, written during the closing days of December, can at best be only a chronological account of developments up to the time of writing, without much interpretation. An effort is made here only to record prominent developments as they occurred and were announced in December, with no pretense of prediction of further change, even during the time between the writing and appearance of this record.—The Editor.

THE textile industries in December again established precedent in the administration of their various codes under the NRA. Cotton-textiles, operating under Code No. 1, once more led by the application, which was granted, for a curtailment of operation of productive equipment by 25 per cent during the month of December. This applied to all cotton-textile plants as defined in the amended code (see page 38, Dec. COTTON), and the only exceptions were those plants operating on contracts with the United States government. This 25 per cent curtailment in December was to be continued in some branches in January and February.

The hosiery industry promptly followed with a 40 per cent curtailment in knitting operations, starting December 18th, over a period of five weeks which might, in the judgment of the administrator, be extended to eight weeks. Pleas for exemption from the curtailment order were allowed and considered on their merits; in all cases where the facts submitted showed undue hardship would result from a strict application of the curtailment order, exceptions were granted, usually for a part of the period of curtailment and for fulfilling old orders.

The silk code authority received authority to reduce machine production in the silk textile industry by 25 per cent of the maximum machine hours permitted under the code for a period of 30 days.

Group Action Foreseen

A definite trend under code administration in the textile industry was indicated in the approval of a resolution of the Code Authority in December, requiring that

> "the members of the industry shall furnish to the Cotton-Textile Institute, Inc., as the agency for collecting the same, such additional statistical data with respect to looms in operation, loom hours, spindles in operation and spindle hours, classified by the broad divisions and staple constructions of products of the Cotton Textile Industry and also such additional data as to numbers of persons and amount of payrolls on a weekly or other basis as the Code Authority may require for the administration of the Code and the performance of its duties."

The indicated trend was the early breaking down of the industry into product groups, through which production control and other matters of operation and fair competition would be regulated in accordance with the particular conditions in each of these broad groups. It was commonly pointed out that though denims and print cloths are parts of the cotton-textile industry, seasonal and other conditions peculiar to either group do not necessarily affect the activities of the other group; that greater productive capacity, or greater curtailment, might be required in one group while the market conditions, etc., of the other, might call for a directly opposite regulation.

An indication of this trend was in the petition of the Southern Combed Yarn Spinners Association, following a meeting in Gastonia, to limit the operation of productive machinery in the combed yarn group to 48 hours per week for a period of 60 days beginning January 1, 1934; and in the approval of this and of a similar program of curtailment for a 60-day period in the carded yarn group, limiting productive machinery on these products to a 48-hour week; and a reduction, for January, of printing machinery to not more than 75 per cent of the hours otherwise permitted in the code.

A part of the order covering the carded yarn curtailment follows:

> "It is required that, for a period of 60 days from January 1, 1934, spinning spindles in the industry wherever located, operating on the production of any type of carded yarn for sale as such (such spindles comprising the productive machinery of the carded yarn group of the industry), shall not be operated in excess of 48 hours each in any week during such period, provided that such period may be shortened by the code authority with the concurrence of the Government representatives thereon, or that such restriction of hours of operation may likewise be reduced at any time during the period as changing conditions may warrant; and provided further that during the period when such temporary limitation is in effect, no weaving mill, combed yarn mill, or knitting mill shall operate spindles in the production of any type of carded yarn for sale as such, which were not employed in spinning carded yarn for such sale at some time during the 90 days prior to December 1, 1933."

This provision that no mill of any type shall operate spindles on carded yarn which were not so employed during the three months prior to December 1, it is emphasized, prohibits what may be termed "floating spindles", or production of yarns of this type by

Gardner to Represent Cotton-Textile Industry in Washington

George A. Sloan, Chairman of the Cotton Textile Industry Committee, recently announced that the Committee had secured the services in Washington of Hon. O. Max Gardner, former Governor of North Carolina.

In making this announcement Mr. Sloan called attention to numerous difficult problems confronting the cotton textile industry and the importance to it of detached and constructive advice from lawyers with a broad industrial background. He said that the Committee has had from the start the constant and invaluable assistance of its counsel, Goldthwaite H. Dorr, of the firm of Hines, Rearick, Dorr and Hammond, New York City, and that the Committee felt fortunate in securing in addition the local assistance in Washington of Governor Gardner, himself a textile manufacturer.

The Industry Committee is giving close attention to the difficult problems created by the disruption of normal conditions in imports and exports. This is one of the first problems which Governor Gardner will take up with the Government representatives. Special attention will be given to the acute situation which cotton textile exporters are experiencing as a result of increased production costs under the Cotton Textile Code without compensating advances in foreign countries. Governor Gardner's assistance in Washington should also be of immediate value in watching the effects of import competition to prevent increases that might cut into domestic production and employment, particularly from textile countries with extremely low production costs.

spindles not so engaged regularly, thus preventing any movement of this kind which would interfere with the plans for stabilization within this group for which the curtailment was recommended.

The order applying to the continued 25 per cent curtailment of printing machinery through January is similar in wording to that referring to the carded yarn group.

It was explained that the recommendations for these curtailment programs were made under Section VI of the code "providing that temporary changes in the limitation of hours of operation of productive machinery to meet particular conditions arising in particular groups of the industry", and that these requirements "have become effective and binding upon all affected by them, with the same force and effect of any other provision in the cotton textile code."

Other Group Committees Appointed

In further conformity to this indicated plan of group regulation, George A. Sloan, chairman of the Cotton Textile Industry Committee, the Code Authority, announced the appointment of additional group sub-committees. (The personnel of the fine cotton goods group and the carded yarn group was reported on page 38 of the December issue of COTTON.)

Mr. Sloan announced first the subcommittee for the rayon weaving branch of the industry, as follows:

G. Edward Buxton, of Providence, R. I.; Robert E. Henry, of Greenville, S. C.; Percy S. Howe, Jr., New York City; J. Spencer Love, Burlington, N. C.; Seabury Stanton, New Bedford, Mass.; and Charles Walcott, of Boston, Mass.

Then he announced the sub-committee on combed sales yarn, as follows:

Benjamin C. Chace, Pawtucket, R. I.; Edward H. Cook, New Bedford, Mass.; Stuart W. Cramer, Cramerton, N. C.; H. A. Currier, New York City; Philip Dana, Westbrook, Maine; George Knowles, New Bedford, Mass.; Thomas H. McKinney, Chattanooga, Tenn.; H. Grady Rankin, Gastonia, N. C.; E. F. Sherman, Providence, R. I.; and A. K. Winget, Albemarle, N. C.

Labor Developments

There have been two significant developments in connection with the labor provisions of the cotton-textile code. One was an interpretation by the Code Authority that Section XVII of the code supercedes the temporary provisions of Section XV as to labor specialization or extension, or the "stretch-out". The temporary provisions of Section XV, imposed by President Roosevelt in approving the code originally, specified that no employee should be required to do any work in excess of the practices as to the class of work of such employee on July 1, 1933. To supercede this, Section XVII, approved on August 1, 1933, provided for a National Industrial Relations Board, and state boards under it, to conciliate complaints arising in connection with the stretch-out (or specialization) system or any other problem of working conditions in the industry.

This interpretation may be construed to mean that the temporary prohibition placed by Section XV upon extending work has been nullified and that provision is made under Section XVII for the settling of any justified complaint made as a result of any extension that may be effected, at any individual plant and affecting individual employees.

The other significant development in interpretation was with reference to the means of agency through which such complaints are to be handled. Under the National Labor Board established under the NRA, local state and district "compliance boards" were set up. In many mill communities, these general compliance boards have attempted to handle complaints from cotton-textile mills, though it has been generally understood that under Section XVII of the Cotton Textile Code, all complaints involving mills operating under this code were subject only to the jurisdiction of the State Industrial Relations Boards established by this section of the Code. Efforts were made by various agencies to have this question of jurisdiction cleared up, and as a result, on December 9, Field Director Donald Renshaw, of the NRA, issued the following Field Letter No. 18 to the district compliance directors, with reference to Handling Labor Complaints under the Cotton Textile Code:

"We have received the following advice from the Legal Division, NRA:

"Article XVII of the Code of Fair Competition for the Cotton Textile Industry gives the Cotton Textile National Industrial Relations Board and the state and local boards jurisdiction over controversies arising as to the stretch-out system 'or any other problem of working conditions.' In our opinion this gives the Board jurisdiction over disputes relating to hours and labor, rates of pay, participation in union activities under 7 (a) of the Act and all similar questions affecting the conditions under which employees work."

"Please refer all complaints of violations of the labor provisions of the Cotton Textile Code directly to Dr. Robert W. Bruere, chairman, Cotton Textile National Industrial Relations Board, Commerce Building, Washington, D. C., without time-limit notice."

It is suggested to mills that if the district compliance director or local compliance board attempts to handle complaints which involve the mill and its employees, that their attention be directed to this field letter, and that they be requested to handle the complaints in accordance with its instructions.

Industrial Relations Boards Effective

During December, several of the State Cotton Textile Industrial Relations Boards were called upon to conduct hearings in connection with strikes, complaints, etc., in their respective states. Among these locations were the Brookside Mills, Knoxville, Tenn., and the Graniteville Mfg. Co., and the Loring group in the Horse Creek Valley section of South Carolina. These hearings were conducted and decisions rendered and they were appealed to the National Board. The National Board on December 2nd handed down final decisions in each case. For the Graniteville Mfg. Co., the decision read as follows:

1. The National Board reaffirms the principles for settlement of existing differences contained in the recommendations as promulgated by the National Board at Augusta, Ga., November 3, 1933.*
2. The National Board expresses itself as being in accord with the efforts of the State Board in applying the National Board's recommendations of November 3, 1933.
3. The National Board declares the strike now in progress at the Graniteville Mfg. Co. off, by reason of this decision.
4. The Aiken Mills, Inc., and Graniteville Mfg. Co., are required to post in a conspicuous place, a list of all employees who went out on strike on October 20, 1933, to give these employees preference in employment before any other new employees are taken on, and to re-hire them as rapidly as they present themselves and work is available, without discrimination as to re-hiring or assignment of work.
5. The list of employees who went out on strike on October 20, 1933, shall be submitted for review and approval to the Cotton Textile State Industrial Relations Board of South Carolina before it is posted, with the understanding that it will be reviewed, approved and posted within two weeks from the date of this decision. The Cotton Textile State Industrial Relations Board of South Carolina is requested and authorized to use its good offices in the preparation of said list and effectuating this decision.
6. In the event of any dispute arising out of this decision, the same shall be submitted to the Cotton Textile State Industrial Relations Board of South Carolina for adjustment, subject to review and final determination by the National Board. The employees are to remain at work pending such final determination.
7. This decision has been rendered in accordance with authority vested in this Board by Article XVII of the Cotton Textile Code, and under agreement of record by representatives of both employers and employees to abide by the decision of this board.

The decision, dated December 2, 1933, was signed by Robert W. Bruere, chairman, B. E. Geer and George L. Berry.

(*) The November 3rd decision referred to was made by the National Board meeting in Augusta, with reference to strikes at the Sibley, Enterprise and Globe mills in Augusta, and the United Merchants and Manufacturers and Graniteville Mfg. Co. mills in the Horse Creek Valley of South Carolina. It provided that all employees report to work on November 6, without discrimination, except for acts of sabotage and violence; that re-employment of former employees then out on strike be subject to the supervision and advice of the state board; and that local industrial relations committees be appointed at each plant to discuss the complaints.

The decision in the case of the Brookside Mills, Knoxville, Tenn., was similar to sections 3, 4, 5, 6, and 7, of the South Carolina decision.

Subsequent to the boards announced for Georgia, South Carolina, Alabama, and North Carolina (see page 38, October COTTON, and page 60, December COTTON) the National Recovery Administration announced the appointment of other state cotton textile industrial relations boards which makes the personnel, as of January 1, 1934, as follows:

Personnel of Industrial Relations Boards

Representing Employers:	Representing Employees:	Chairman, representing the public:
National Board		
B. E. Geer, president, Furman University, Greenville, S. C.	George L. Berry, president, International Pressmen's Union.	Dr. Robert W. Bruere, of Columbia University.
Georgia State Board		
J. A. Mandeville, president Mandeville Mills, Carrollton, Ga.	O. E. Petry, secretary, Ga. Federation of Labor, Atlanta, Ga.	T. H. Quigley, Ga. School of Technology, Atlanta.
Alabama State Board		
G. H. Lanier, president, West Point Mfg. Co., West Point, Ga.	C. D. Finch, Birmingham, Ala.	P. O. Davis, Alabama Polytechnic Institute, Auburn, Ala.
North Carolina State Board		
E. C. Dwelle, vice-pres., Chadwick-Hoskins Co., Charlotte, N. C.	Forrest T. Cornelius, Salisbury, N. C.	T. S. Johnson, N. C. State College, Raleigh, N. C.
South Carolina State Board		
J. E. Sirrine, engineer, Greenville, S. C.	Successor to E. R. Britton, resigned to be appointed.	H. H. Willis, textile department, Clemson College, S. C.
Mississippi State Board		
C. A. Butterworth, McComb, Miss.	W. G. Byars, Jackson, Miss.	X. A. Kramer, McComb, Miss.
Massachusetts State Board		
C. F. Broughton, Wamsutta Mills, New Bedford, Mass.	W. E. G. Batty, New Bedford (Mass). Textile Council.	John C. Callan, Harvard Business School, Cambridge.
Tennessee State Board		
Geo. R. West, Mgr., Dixie Mercerizing Co., Chattanooga, Tenn.	Robert Cook, Chattanooga, Tenn.	J. R. Preston, Hamilton Nat. Bank, Chattanooga, Tenn.

Cotton Processing Tax

A press-time note on page 42 of the December issue of COTTON reported a ruling by Deputy Commissioner of Internal Revenue Bliss, clearing up the complicated situation that had existed with reference to the payment of the tax on stock in process on August 1, under the AAA. Mr. Bliss ruled that this stock in process, which was defined as stock up to but not including yarn, was taxable at 4.2 cents per pound on the quantity of raw cotton used in its production, not on actual net weight of the stock. At the time, no interpretation was made as to the conversion factor to be used in computing the amount of raw cotton so used.

During the latter part of December a ruling was issued requiring that, in computing the amount of raw cotton used to produce the "stock in course of first domestic processing", each mill must use its own waste conversion factor, which means that a mill, though the maximum conversion factor allowed on stock in secondary processing and on finished goods in stock on August 1st was only 105.2 per cent, must apply to the stock in course of first domestic processing on that date their own usual conversion factor which naturally will exceed 105.2 per cent and require the payment of a substantially greater amount of tax proportionately on the stock in first domestic processing than on stock in yarn or other finished goods form, coming under this floor stock tax.

In December the Department of Agriculture issued a Bulletin of Supplementary Cotton Regulations made by the Secretary of Agriculture under the AAA, containing the complete list of terms or definitions and detailed conversion factors to be used in computing the processing tax to be paid on different textile items. These conversion factors are the percentage of the per-pound processing tax on cotton, with respect to each pound of the cotton content of the articles listed processed from cotton. The table gives also the non-cotton content allowable under each product defined and listed.

Conversion factors of 60 per cent and 80 per cent respectively are applied to card strips and comber waste. The tax applies only to these products which are exported or imported, and not to cotton goods which contain card strips or comber waste in them, since the tax on such card-strip or comber-waste content made and consumed domestically would have already been paid as processing tax upon the first domestic processing of the stock from which they came. In the case of card strips or comber waste imported, however, the tax of 60 per cent and 80 per cent (of 4.2 cents per pound) respectively, applies.

This Bulletin, containing the definitions and conversion factors, is known as Cotton Regulations, Series 2, Supplement 2, Form R-11, Agricultural Adjustment Administration, U. S. Department of Agriculture.

Code Amendments Adopted on Hours and Wages for Cleaners and Outside Help, Etc.

On December 28, George A. Sloan, chairman of the Cotton Textile Code Authority, announced that amendments covering hours and wages of outside employees, cleaners, and wages of sub-standard workers, had been adopted as follows:

> "Pursuant to the recommendations of the Code Authority of the cotton-textile industry, the following amendments to the Cotton Textile Code have been approved by General Hugh S. Johnson, Administrator of the National Recovery Administration, to become effective January 1, 1934:
>
> "(a) There shall be added at the end of Section II of the Code of Fair Competition for the Cotton Textile Industry the following:
>
> "In the case of outside employees and cleaners the minimum wage shall not be less than 75% of the standard minimum wage hereinabove set forth. In the case of employees in the industry who are partially incapacitated by reason of age, injury, incompetency or infirmity the minimum wage shall be not less than 80% of the standard minimum wage hereinabove set forth, provided that such employees employed by any one employer shall not exceed 4% of the total number of his employees, and further that as a condition to the employment of such employees the Cotton-Textile National Industrial Relations Board may require such certificate as it may find advisable with relation thereto.
>
> "(b) There shall be added at the end of the first paragraph of Section III of the Code of Fair Competition of the Cotton Textile Industry the following:
>
> "In the case of outside employees, employers in the Cotton Textile Industry shall not operate on a schedule of hours of labor in excess of 44 hours per week, except in cases of emergency. In the case of cleaners, no employer in the Cotton Textile Industry shall operate on a schedule of hours of labor in excess of 44 hours per week."

Mr. Sloan, in announcing these additions, stated that an administrative order issued covering them by the National Recovery Administration gives to them the same force and effect as any other provisions of the Cotton Textile Code.

The question arose, upon announcement of the order, whether the wages involved should be computed at 75% of a $12.00 per week minimum, or $9.00 per week worked; or, since a maximum of more than 40 hours per week is allowed in these groups, upon the "equivalent" rate of 30 cents per hour, as stated in the code, making $9.90 minimum for the 44-hour week allowed. Apparently, each mill was to place its own interpretation on this point, pending a definite ruling from the Code Authority.

CURRENT TEXTILE TOPICS. . . .

Talk of the Month

DURING the last weeks of the old year one of the most important phases of the first six months under the cotton code of the New Deal came to the forefront of trade discussion. The cotton textile industry, in taking action for reduction of operating hours in December and in considering further restriction through the early part of the new year, once more was the pioneer of industry in the new co-operation. In this move, the industry demonstrated the unanimity of control which can be achieved under the code and also the fact that the proper schedules for permanent use have not been determined. In other words, the experiment under the Nira had to start on a basis artificially established and in the course of time it must seek the normal level of production in line with demand.

The General Situation in Textile Markets

Circumstances which have prevailed since the spring may later lead cotton manufacturers to give thanks that the fall lull was realized; that a demonstration of the need for new adjustment of schedules, though not serious, was made early under the experiment. We allude for one thing to the fact that the idea of a 30-hour week was not eliminated by adoption of the 40-hour, two-shift schedule and it quickly reared its head again when the first signs of over-production were given. Another salutary thing, brought under a strong light by the early demonstration that production could not continue on the summer level, was the need for curbing expansion of the industry for the time being; for restricting installations of equipment to replacement.

It was stated in the middle of the summer that the test of ability by the cotton industry to regulate itself under the code would come in the first quarter of the experiment. Three significant moves have been made within the first six months and all of constructive nature. First was the move of one unit of the industry for relaxation of the code to allow an operation of four shifts on a five-day week of six hours a day, which evoked strong opposition. Then came the December restrictive measure and talk of 1934 curtailment. Third, there was denial by the Administration of the privilege of further operation by tire-fabric manufacturers above the 40-hour schedule. Herein were demonstrations of self regulation by the industry and co-operation by the government.

With the officially conferred power to regulate and with fear of unfair competition allayed, the response to the action of the Cotton Textile Industry Committee, or code authority, in recommending the December curtailment was hearty. Because of varying conditions in groups of the industry, the further recommendation that ninety-day periods of shortened machine hours might be required was one for varied consideration. Here again, there was encouragement that the application of the provision might be left to the individual groups conversant with their particular problems and requirements. The spirit of co-operation was evinced in a prompt proposal of the Southern Combed Yarn Spinners' Association of a 48-hour week for January and February.

Amid these voluntary movements, there obtained the past month a latent fear that the Congress might invoke the 30-hour week. General Johnson himself told the National Manufacturers' Association it was almost certain that a bill for the five-day, six-hour week would be introduced. Previously this idea had been flouted by cotton men, but its reiteration was alarming enough to make agents reluctant to sell ahead without protection of a contract clause covering the possibility of new restrictive legislation. At the same time the hope was held that voluntary action for adjustment, indicating a desire to bring industry into production balancing with demand, might find favor with labor and legislators and thereby forestall outside intervention.

All the adjustments of the first half-year under co-operative control, the partnership of the Government with industry, meantime, have put cotton manufacture at the start of 1934 into a new position and one which affects the buyer as well. The higher costs incident to shorter hours and minimum wages, which are irrevocable and fixed charges of a new day, involve an unprecedented stability upon which buyers must calculate. From the raw cotton to the finished goods, a new order is faced. To these conditions is added the current movement for stability of production which is also unprecedented.

Under the circumstances, the recent quiet period following upon a temporary boom might well be the last of the drastic seasonal ups and downs. At least a better spread of business and reduction of the highly speculative feature of operations seem to be in the making. Lest this idea be accepted as a hazardous forecast of the outcome of a noble experiment, it should be borne in mind that the conditions are not the fruition of a suddenly inspired Administration plan but the gradual consummation of a program long active in the composite mind of textile leaders, given impetus by the effective hand of Government. It is a step of industrial evolution!

New England Mill Situation

SEASONALLY slow business in cotton goods the last of the year 1933, together with plans for restriction of output during the first part of the current year, still found manufacturers of New England fairly complacent regarding progress and very confident of the outlook. Statistics have been confirmatory of expressed sentiment about the encouraging status of things for this region. Forwardings of raw cotton to mills North, of which those in New England constitute a

preponderating part, were 420,000 bales to December 8, according to the New York Cotton Exchange. This total compared with 308,000 for the same period of 1932 and 322,000 for the corresponding time in 1931.

Only irregular business was done in the last quarter of 1933 and the movement for curtailment in December was hailed as a constructive act, as well as the program for adjustment of the national cotton industry to demand in the months following. As in other sections of the country, production of New England mills was mixed, with some concerns busy on orders to keep them going close to the maximum schedules allowable and others finding less business. This also gave rise to an irregular condition of employment, but the seasonal character of the lull in late December was not one to cause serious worry, in view of the confidence in late winter and spring prospects.

There was some concern lest Congress should disturb the industrial situation with measures such as a 30-hour week again. Indeed this was a factor to make manufacturers hesitate about accepting some business in spring goods, lest orders should turn out unprofitable because of unforeseen costs. Thus James Sinclair, treasurer of the Charlton Mills, Fall River, and president of the Fall River Cotton Manufacturers' Association, was quoted as saying he would go so far as to forecast "exceptionally good business" in the first quarter of 1934, if the politicians did not disturb the elements. However, it was strongly hoped that voluntary action of the industry for further control would forestall political interference.

Retail business of New England gives as favorable testimony as anything to the improved situation of the cotton industry. The gains in store sales for November in four leading textile cities of Massachusetts were cited by the New Bedford Standard Times as "welcome news." In the four cities of New Bedford, Fall River, Lawrence and Lowell, the month showed sales from 29.2 to 18.1 per cent over retail business a year before. Not only so, but these textile cities made the best showing of any municipalities in the State. The showing is due both to wider employment and the new wage scale. "It is encouraging to note," says the New Bedford paper, "that a movement has been started to preserve, after the expiration of the recovery act, the advantages secured from it."

Although late December employment was considerably under that of earlier in the year and was spotty, because of the variations in activity of different kinds of goods, it still showed to advantage compared with conditions just after the recovery began. For one example, the Pequot Mills of Salem were reported employing 2550 at mid-December, against 1909 last May. The company curtailed operations from five to four days a week on reduced business, but it was stated that the two-shift schedule inaugurated on July 31 and involving several hundred more workers was become a permanent feature of operations. The reduction of schedules was made in a way to keep the full corps of workers.

Favorable dividend actions taken by many companies in the past month or two have included declarations by many textile organizations of New England. "Inasmuch as many textile units declare dividends on an annual basis only," said a survey by the Standard Statistics Co. of New York, "determined by results for the year, the list is likely to be considerably augmented within the next few months." In this connection, however, Mr. Sinclair of Fall River cited the burden of the processing tax as an obstacle to the earning of dividends. He said that manufacturers paying with checks on which was noted "Paid under protest". At the Charlton Mills, it was estimated, the tax disbursements amounted to about 12 per cent on the capital stock.

Novelties continue to be an outstanding dependence of the New England cotton mill industry, notwithstanding the discussion of wide possibilities for the broad reestablishment of printcloths among the products of Fall River plants. In that great centre of fine cotton goods, New Bedford, the reports of recent weeks have emphasized attention placed upon specialties for the coming spring season. This branch of the industry has worked hard to meet the most exacting requirements of converters for goods of high style, to go into fine gowns and suits, or other purposes. They have been heartened by early response of the buyers and general trade prospects before the start of the year were also encouraging.

COMMENT ON THE COTTON MARKET

New Orleans, December 15th, 1933.

As THE old year draws to a close there is a feeling of confidence as to the future so far as general business is concerned, which is reflected in a more cheerful sentiment. Due mainly to the activities of the Federal government, products of the farm are bringing a much better price than was obtained one year ago, products of the mill and factory are commanding a higher price than last year, employment, due in a large measure to the government having taken care of much of the slack, has increased considerably at higher wages. All of which has served to enlarge the purchasing power of the masses and make for better general business; the objective of the NRA, the program of which is just beginning to get into full swing.

The full significance of the "new deal" is just commencing to be realized and appreciated, so much that there is now less clamor for currency inflation, with more disposition to work in harmony with the President and await further developments as regards the benefits expected to come of the business recovery program as it functions more extensively in the future. While much has been accomplished already in trade revival, better results are looekd for with the passing of time.

During the past month the cotton market ruled comparatively steady, for while values were on the down grade during much of the last half of November, there was some recovery thereafter, the large stocks in the interior and absence of speculation notwithstanding. Depressing influences were hedging, December liquidation, uneasiness over the monetary situation, a limited demand, the decline in sterling exchange and a somewhat larger annual government crop estimate. Sustaining features were the ten cents loan proposal, the holding movement which made for light offerings, some improvement in general trade, ratification of repeal of the 18th Amendment, and prospects for a further reduction in the acreage next spring.

Last season, while the crop in bales of 500 pounds gross weight was 13,002,000, ginnings in running bales were

12,710,000. This year the crop in bales of 500 pounds gross weight is estimated at 13,177,000, but Washington advised to effect that total ginnings in running bales will probably be about 400,000 bales less than the indicated crop calculated in 500-pound bales. This would indicate ginnings in running bales for the season of about 12,777,000 bales.

GOVERNMENT'S ANNUAL COTTON CROP ESTIMATE

Year—	1933	1932	1931
Acreage in cultivation, July 1st	40,929,000	36,542,000	41,189,000
Acreage for harvest	30,144,000	35,939,000	40,693,000
Indicated crop, bales of 500 lbs. gross wt.	13,177,000	13,002,000	17,095,000
Indicated average yield per acre, lbs.	209.4	173.3	201.2
Ginned to December 1st	12,108,000	11,635,000	15,018,000

SEASON'S INDICATED WORLD'S SUPPLY OF AMERICAN LINT COTTON

Bales—	This season	Last season
World's carry-over, August 1st (Hester)	11,339,000	12,911,000
Indicated crop, running bales, if	12,777,000	12,710,000
Total, about	24,116,000	25,621,000

BRITISH BOARD OF TRADE REPORT FOR NOVEMBER

Year—	1933	1932	1931
Exports of yarn, pounds	13,000,000	10,000,000	12,000,000
Exports of cloth, yards	170,000,000	159,000,000	126,000,000

CENSUS BUREAU REPORT

United States—Bales—	This year	Last year
Consumption, lint, November	475,368	502,434
Consumption, lint, 4 months	2,067,297	1,901,566
Mill stocks, November 30th	1,573,744	1,454,305
Stocks in public storage and warehouses, November 30th	10,411,491	10,693,717
Stocks in mills, public storage and warehouses, November 30th	11,985,235	12,148,022
Stocks in mills, public storage and warehouses, October 31st	10,835,532	11,091,704
Active spindles during November	25,423,348	24,368,478
Active spindles during October	25,875,142	24,583,408

The larger November British exports of yarn and cloth tend to confirm improvement in the British cotton textile trade. On the other hand the trend of United States consumption is somewhat downward. Until of late the cotton goods markets of the North have been ruling quiet, but there was some pick up in business recently, especially in gray cloth, with further January-February contracts being booked subject to protective clauses against possible national legislation. It is reported that group chairmen withing the industry are arranging meetings for recommending regulation of production.

Recently Washington advised: "The Agricultural Adjustment Administration announced it will soon begin distribution of the four cents a pound loans to 600,000 cotton farmers who hold options on 2,400,000 bales. Each farmer receiving the loan will be required to sign a pledge to reduce his acreage next year in accordance with the government program and to turn over his option cotton to a government managed pool. The pool manager is authorized to sell the pool cotton at anytime it can be marketed for 15 cents a pound, basis ⅞-inch Middling. Pool manager is also given authority to sell the cotton and replace with futures, to sell futures and replace with spots, or to deal in futures as a hedge to protect pool holdings. After July 31, 1934, pool manager may sell the cotton at any price available in his discretion."

There seems to be only a limited demand for spots in the South, nevertheless offerings remain light, due to the holding movement, which accounts for the lighter movement to market of late.

MOVEMENT TO MARKET, EXPORTS AND SPINNERS' TAKINGS

Week ending Dec. 15th— Bales—	This season	Last season
Week's in sight (marketed)	295,000	404,000
Since Aug. 1st	9,220,000	9,167,000
Week's exports from U. S., inc. Canada	173,000	220,000
Since Aug. 1st	3,857,000	3,789,000
Week's spinners' takings of American (world)	317,000	314,000
Since Aug. 1st	6,248,000	5,919,000

As noted, the movement to market the past week was comparatively light, reflecting the tenacity with which the interior is holding, but exports to foreign countries were disappointing. On the other hand spinners' takings were fairly good, and since August 1st are 338,000 bales larger than to even date last season.

WORLD'S VISIBLE SUPPLY OF COTTON TODAY

Bales—	This year	Last year
Of American	9,726,000	10,427,000
Of other kinds	1,674,000	1,660,000
Of all kinds	11,400,000	12,087,000

Despite the large stocks inland, if the farmer continues to hold, statistics are likely to have some influence on values, as there is assurance that the government will hold its accumulations of option cotton off the market unless the price advances to above the 15 cents level.

Domestic general trade shows improvement, due largely to the increase in employment, better wages and increasing activity of the holiday trade. There is improvement in the steel industry, in building construction, and there is a revival in the automobile trade. Other favorable developments are the reported substantial increase in the demand for commercial credit, the effect of prohibition repeal, and the advantage of the cheaper dollar abroad in improving general export business.

Aside of what may come of a constructive nature with the reconvening of Congress next month, Washington continues to work in the interest of all by planning to control acreage of cotton and corn, hog and oil production, as well as some minor crops, with the view of reducing surplus stocks, advancing prices and increasing consumption, and thereby strive to bring back prosperity, which is the goal sought. Without taking time out, a great deal has been accomplished already, but there remains much more to be done. As to the President's monetary plan, it has been constructive thus far, and whatever is done in the future, will likely be in the interest of the country and the American people. It is evident, therefore, that the coming of 1934 will likely be a harbinger of better days. In anticipation of such a probability, late advices from New York are to effect that securities are passing slowly into strong hands and are being locked up by investors who are expecting dividends and increasing earning power in the new year.

What the Southern Mills Are Doing

An addition to be known as Unit B, and to house 35,000 spindles, is being erected at Martha Mills, a division of B. F. Goodrich Rubber Co., Thomaston, Ga. The present equipment of Martha Mills, which produces tire cord for the company's use, is 80,000 spindles, to which it was increased when Goodrich acquired the original 30,000-spindle plant from the Hightower interests some years ago. It is understood that the spindles for the new addition were acquired by the Goodrich company in a purchase from Mill No. 3 of the Manomet Mills, New Bedford, Mass., and that these spindles will be removed to Thomaston upon completion of Unit B, which is being erected under the supervision of Robert & Co., Inc., Atlanta, Ga., architects and engineers.

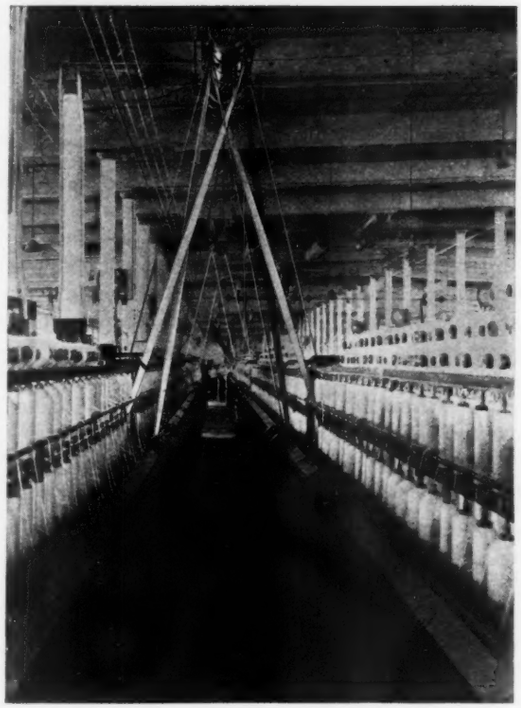
It may be pointed out that permission for this plant's erection is allowed under the provisions of the cotton-textile code. The code prohibits, without express permission, the installation of additional spinning spindles and/or looms. This development involves only the transfer of productive equipment from New Bedford to Thomaston and is not an increase in the number of spindles in place in the country.

The United States Rubber Company, which operates textile mills at Hogansville, Ga., and Winnsboro, S. C., has acquired the Shelbyville Mills, Inc., Shelbyville, Tenn., and will place them in operation immediately, with H. H. Ocheltree as superintendent; A. P. Mullins, Jr., as manager, and A. B. Alexander as head of the laboratory.

Machinery is being installed in the new bleachery and print works department of the Lanett Bleachery and Dye Works, Lanett, Ala. The building was erected at a cost of approximately $150,000. It is understood that three printing machines will constitute the initial installation.

R. C. Jordan, president of the Perkins Hosiery Mills, Columbus, Ga., J. A. Mitchell and C. L. Pierce, have be-

TODAY'S OPERATING CALLS FOR LOWER COSTS



GOODYEAR Belts and Hose are direct profit factors in the textile industry because they cut down costs.

They do so by delivering more trouble-free performance and longer life on the job.

And they are enabled to do that because they are designed and constructed out of Goodyear's own definite, practical experience with cotton mill requirements.

For example, Goodyear THOR Belt (Seamless) has an unequaled record for serviceability on Spinning Frames (as illustrated here), Cards, Slubbers, Spoolers, Looms, Slashers and Breakers.

Goodyear COMPASS (Cord) Endless Belt—*the most nearly stretchless belt made*—is ideal transmission equipment on Pickers, Tappers, Twisters and Vertical Openers.

The highest development in V-belts for the industry today is the Goodyear Emerald Cord V-Belt. For clean-up duty, Goodyear Air Hose excels.

All Goodyear Mechanical Rubber Goods for the textile industry are specified to individual mill needs by the G.T.M.—Goodyear Technical Man. He will call promptly on your request to Goodyear, Akron, Ohio, or Los Angeles, California, or your nearest Goodyear Mechanical Rubber Goods Distributor.

Goodyear is represented in the South by authorized Goodyear Mechanical Rubber Goods Distributors conveniently located with relation to your mills and able to supply promptly all Goodyear Mechanical Rubber Goods for the textile industry

THE GREATEST NAME IN RUBBER

GOODYEAR TEXTILE BELTING

titioned for a charter for Jordan Textile Mills, Inc., which will, it is understood, act as a subsidiary in the marketing of hosiery mill products.

Bibb Manufacturing Co. will rebuild a warehouse at their Porterdale plant which was recently destroyed by fire.

Iredell Mills, Mooresville, N. C., formerly the Cascade Mills, which was acquired by J. S. Love and associates of Burlington, N. C., is being overhauled, and new looms are being installed to manufacture rayon and silk fabrics.

American Spinning Co., Greenville, S. C., have purchased a Twist-Setter filling conditioning machine from Bowers and Barksdale, Atlanta, Ga.

The Walcott & Campbell Spinning Mill, Gulfport, Miss., which was erected several years ago and has stood idle for three years, has been re-opened with William R. Barnette as agent. Bliss, Fabyan & Company are the selling agents.

Royal Cotton Mill Co., Wake Forest, N. C., has been formed by Harvey Steward, Annie Rene Powell and Foster Bentley, to take over the property of the former Royal Cotton Mills there.

Cannon Mills Co. are enlarging the warper room at the York, S. C. plant preparatory to installing improved machinery; and are making other improvements, including the adding of a new roof, new steel window frames, etc.

A new 400-hp. boiler is being installed by the Appalachian Mills Company, Knoxville, Tenn.

Potter and Shackleford, of Greenville, S. C., have been awarded a contract for the erection of a super-structure at the American Enka Corp., Enka, near Asheville, N. C. The contract price was approximately $85,000. The total building addition and new machinery will represent an investment of over $1,000,000, it is reported.

Carroll Mills, Carrollton, Ga., have purchased the equipment of a braiding mill in New York state, and installed it in the building at Carrollton formerly occupied by Lawler Hosiery Mills.

Okey Hosiery Co., Inc., Charlotte, N. C., has been granted a charter to manufacture full-fashioned hosiery. Charles L. Okey, George B. Wilson, Jr., and George L. Sibley are among the incorporators.

Delco Hosiery Mills, of Lexington, N. C., will remove its equipment and headquarters to High Point, N. C., in the quarters formerly occupied by the Simmons Hosiery Mills.

Renfro Hosiery Mills, Mt. Airy, N. C., have completed installation of a finishing unit to handle the company's output and also to finish hosiery purchased in the gray.

An extension is being erected by the Carmichael Hosiery Mills, McDonough, Ga., to double the present floor space.

Glorie Underwear Mill, Eufaula, Ala., has been purchased by Max J. Friedman Corp. of New York City, and will be operated as the Alabama Knitting Mills, Inc.

Mercury vapor lamps furnished by the General Electric Vapor Lamp Company have been installed at the Scottdale Mills, Scottdale, Ga.

Greensboro Discussion on Maintenance

(Continued from page 34.)

and the first question he would ask is 'What is your cost?' It got so I would tell him the cost before I shook his hand. But we must forget some of our ideas on cost, as we are all on about an equal basis, and we must get in there and find out how we can improve our jobs.

"As to motors, I have started a system of not only inspecting them, but gauging them, and that record is kept in my office. We gauge them once a month. Now-a-days motor efficiency is important; if a motor burns out now perhaps it is in a department where we can never make up the lost production."

Another member reported that he has twelve pickers, and tries to get over them every week-end. He said, "I think pickers should be cleaned frequently. I think they should be cleaned every three months, and calender rolls taken down, etc." Another man said he felt speeders and spinning frames should be thoroughly overhauled once a year.

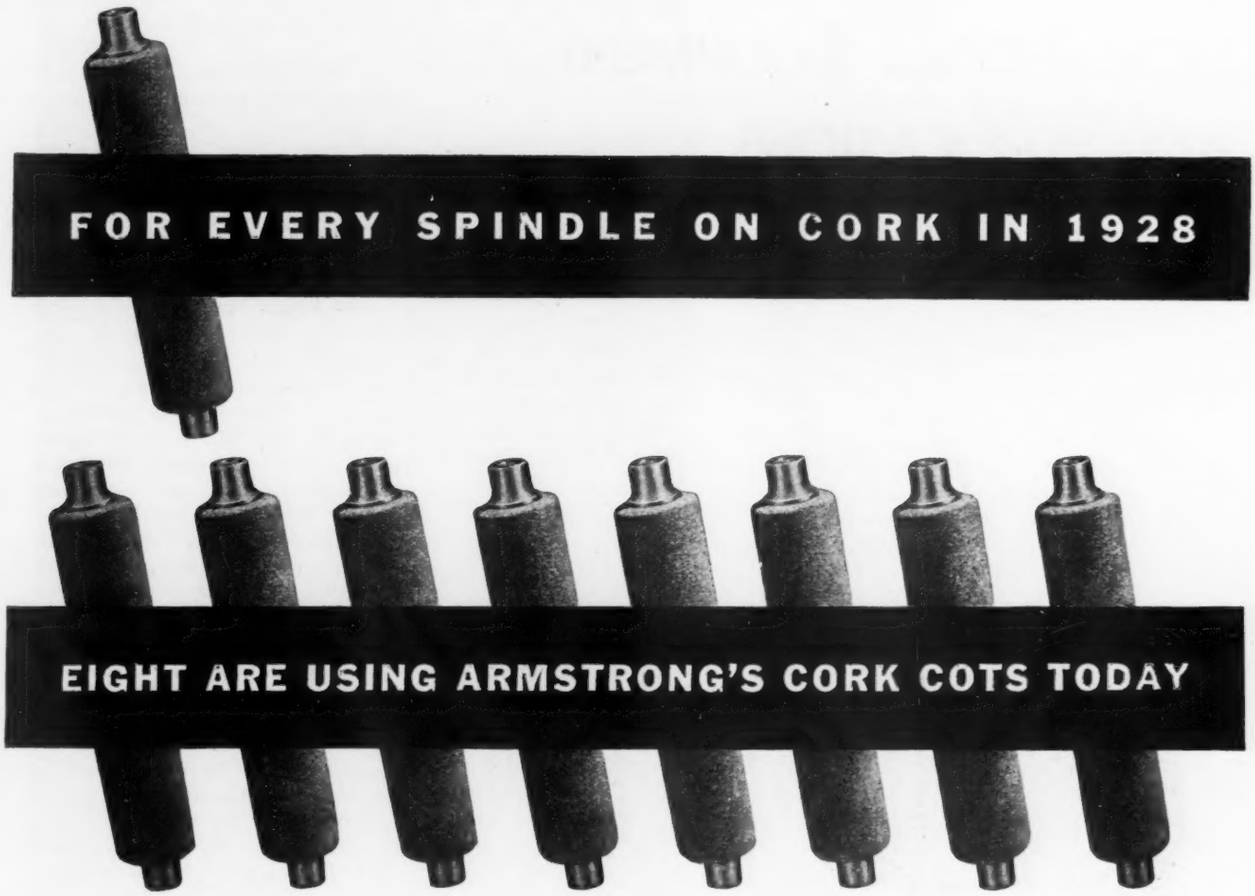
The chairman asked for experiences on one-process picking. W. J. Jennings reported that they have been running one-process machines for about two years, and that a test for yard-by-yard variation showed that, for a lap supposed to be 14-ounce, the range was from 13¾ to 14½ ounces. One yard weighed 15 ounces but the others came in the range stated. He said the yarn strength is as high as before, but it does not seem to be quite as clean. He said, as to lost laps, they average about ½ of one per cent on the one-process machines.

There was then some informal discussion as to the importance of training understudies for the different jobs in the mill. The chairman projected the question as to how long it should take to train a card grinder but there was no definite conclusion reached on this. Thomas Nelson, dean of the textile school at N. C. State College, was called upon, and endorsed what Mr. Paine had said with reference to the effect of cotton strength on cloth strength, in spite of the strength of the yarn used. He also brought out that tests are being conducted at present to determine the effects of the diameters of different types of cotton upon strength, etc.

In concluding the meeting, the retiring chairman, Mr. Batson, appointed a committee of four to canvass the mills of the district in an effort to enlist more interest and support in the work of the division. This committee consists of: G. C. Truslow, Spray, chairman; R. H. Armfield, Greensboro, J. V. McCombs, Franklinville, and J. O. Thomas, Spray.

S. T. Anderson, assistant superintendent, Carolina Cotton & Woolen Mills Co., Spray, N. C., was named chairman of the division, succeeding Culver Batson, manager of the Consolidated Textile Corporation, Lynchburg, Va. James A. Bangle, superintendent, Proximity Cotton Mills, Greensboro, was made vice chairman; and J. O. Thomas, personnel director, Carolina Cotton & Woolen Mills, Spray, was re-elected secertary. John Rowe Steel, of Ramseur, N. C., and R. H. Armfield, superintendent, White Oak Cotton Mills, Greensboro, were made discussion chairmen.

The meeting was concluded at a luncheon at the King Cotton Hotel, where the sessions were conducted.



NOBODY could "kid" mill executives into putting 6,000,000 spindles on cork. Only cold-blooded facts and figures could make mill after mill switch over to Armstrong's Seamless Cork Cots.

Here's a typical set of facts and figures "out of the records": With their old coverings, a 60,000 spindle mill in South Carolina on standard print cloth numbers had an annual roll cost (day and night run) of 12 cents per spindle on their spinning frames. They changed to cork and cut that cost to less than 3 cents—saved 77%.

It's figures like these that have made mill men sit up and take notice—then switch to Armstrong's Seamless Cork Cots. And the savings they are realizing are now helping make up for the higher operating costs under the code.

How about quality? You'll get equal or better quality yarn with Armstrong's Seamless Cork Cots. Furthermore, operating conditions are often improved. Lap-ups and clearer waste are greatly reduced and eyebrows practically eliminated; hard ends and high humidity affect cork less; there are fewer roll changes, fewer piecings, and fewer stubs in the yarn.

Armstrong Cork & Insulation Co., Textile Division, 923 Arch St., Lancaster, Pa.

6,000,000 SPINDLES NOW ON CORK

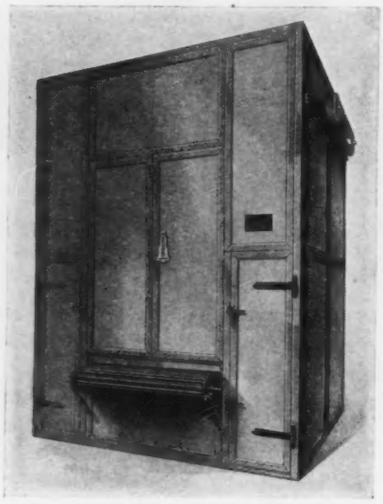
Armstrong's SEAMLESS CORK COTS

For Spinning and Card Room Rolls

NEW TEXTILE EQUIPMENT AND PUBLICATIONS . . .

Multipass Airlay Dryer

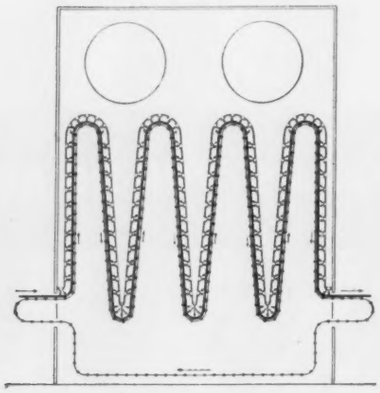
A new drying machine, known as the Multipass Air-lay Dryer, has been announced by Proctor & Schwartz, Inc., 7th St. and Tabor Road, Philadelphia, Pa., and, it is pointed out, introduces a new principle of drying a wide variety of materials in continuous sheet, web, strip, or string form, after washing, dyeing, printing, impregnating, etc. In this machine, which provides continuous handling in conjunction with preceding and succeeding processes, the material is held flat while drying, with



New drying machine

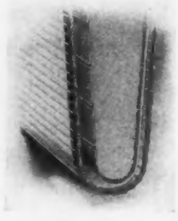
no tension, only air touching the upper face of the material. The material is carried in a series of passes upward and downward through the drying chamber. It is held to the conveyor by the pressure differential between adjacent air chambers, air thus serving to dry the material and to help in carrying it.

The machine appears as a box-like enclosure; running through it in a circuitous path is the conveyor, which is made up of a series of strong light rods or girts, spaced well apart, carried by parallel runs of sprocket driven chain. Extensions of this conveyor outside the enclosure at the ends provide for feed and delivery of material. The main enclosure is divided into two air chambers, by an air diffuser which follows the contour of the conveyor path and which consists of a series of air-ducts with nozzle-like openings, through which air passes from the high pressure chamber to the low pressure chamber. The pressure differential between the two chambers, and on opposite faces of the material, "lays" the material evenly against the conveyor rods so that it moves along with these rods at the same rate of travel without friction or slippage throughout the run, it is explained. The diffuser is designed to give a uniform distribution of air over the material. The currents of air from the diffuser strike the material at close range at right angles to the path of travel, giving an extremely rapid and even drying action, it is explained.



Section showing travel of goods through new drying machine . .

After the air has passed from the high to the low pressure chamber, it is reheated and returned to the high pressure chamber to repeat its cycle. The design of the machine provides, according to specific requirements, for the proper exhaust of moisture-laden air from the enclosure and a corresponding intake of fresh air to maintain uniform drying conditions.



Detail of conveyor used in new dryer

The housing of the machine consists of a strong structural steel framework, closed in by panels and doors of heavy sheet metal encasing extra-thick, high-efficiency insulation. All panel joints are sealed with thick cushions of resilient insulating material. The fans are available with either direct motor or pulley drives.

Simple arrangements for feed and delivery are provided, the material may come from rolls, tank, truck, etc., and delivered to folding, winding and similar apparatus.

The accompanying illustrations show clearly the operation of the machine during the passage of the material being dried through it.

:: :: ::

Rubber Belt on Silk and Rayon Spinners

The B. F. Goodrich Rubber Co., Akron, Ohio, have announced the development of a special rubber belt for silk and rayon spinners, to be made endless on the job. The company claims for the new belt especial flexibility and elasticity and low permanent stretch. More than 30,000 feet (or 1,000 belts) had been running satisfactorily for eight months or a year on every known type of machine, before the product was announced for the trade, it is pointed out.

The company selected a cement after trying more than 600 different compounds, and developed a sturdy, compact vulcanizer. The three elements—the belt, the cement and tie gum and the vulcanizing equipment—are presented as a service for making belts endless on the job, and have proved satisfactory for jobs involving a 500-hp. drive and for jobs involving delicate work around intricate twists or turns and tiny pulleys, the company explains.

:: :: ::

Bronze Catalogs

Johnson Bronze Company, New Castle, Penna., have issued a catalog of their phosphor bronze bushings, standard stock sizes ready for machine assembly. This is known as Bulletin No. 339. The company has also prepared Bulletin EM-4 covering their electric motor service bushings.

:: :: ::

New Device for Measuring Light

The Sight Light Corp., Meriden, Conn., have announced the Sight Meters, which, it is pointed out, provide a simple and positive means of measuring light, and in addition indicate the minimum amount of light needed for any purpose. It is an adaptation of the famous Weston photronic (battery-less) photo-electric cell and is simple to read, small in size and light in weight.

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Recording Potentiometer Pyrometer

The Foxboro Co., Foxboro, Mass., have produced a new type of equipment known as the recording potentiometer pyrometer, of which a new and unique type of balancing mechanism is an important feature. This is so

NEW EDITION—AUTHORITATIVE—COMPLETE

Here is a free book that every textile mill operator should have. Contrary to usual conception, filtration is a highly specialized branch of chemical engineering, and deserves careful attention.

It involves the use of chemicals for coagulation and precipitation of foreign matter, the removal of iron, oil, manganese and the production of clean clear water suitable for the exacting requirements of the textile industry.

Contained in this authoritative book is a complete description of these important processes, with especial emphasis on the latest developments, and full information on Permutit's newly developed single valve control.

Its pages include tables of specifications for standard filters, a clear explanation of the mechanics of filtration, and illustrations of special features. Recently developed types of chemical feeds and their important bearing on coagulation are thoroughly discussed and profusely illustrated.

Water is one of the fundamental raw materials in your mill, and this book shows you the means to make it yield you extra profits through reduction in costs and process difficulties, through removal of undesirable impurities. When we receive your request for a copy of this book, we shall be glad to include information on the new fully automatic zeolite water softeners for removal of water hardness and elimination of the process troubles that dissolved lime and magnesia compounds cause.

The coupon is for your convenience.

SEND FOR YOUR FREE COPY NOW

Permutit

Water Treating Equipment

SALES OFFICES IN ALL PRINCIPAL CITIES

THE PERMUTIT COMPANY
330 West 42nd Street, New York, N. Y.

Please send me a free copy of "Water Filters and Filtration Equipment" and also information on your fully automatic zeolite water softener.

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Company .....

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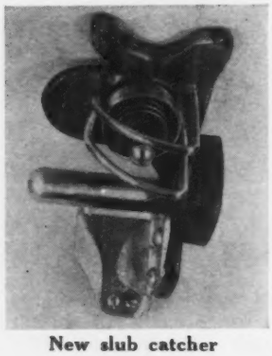
designed that it produces a large movement of the pen or print wheel for a small galvanometer deflection and moves the printing mechanism from one end of the scale to the other in a minimum of time, without requiring an extremely fast cycle or rapid motion of the mechanism. This balancing mechanism consists essentially of a V-shaped drive cam and friction roller. The sensing fingers, which detect galvanometer deflection, position the friction roller according to the position of the galvanometer pointer.

The recorder is housed in a new fume-tight and dust-proof case so designed that it may be either flush or surface mounted. The case door is of aluminum, with a large glass window. The entire mechanism may be swung forward out of the case, making every part accessible for inspection.

:: :: ::

New Slub Catcher

Eclipse Textile Devices, Inc., Elmira, N. Y., have announced the introduction of a new Eclipse perfection slub catcher, illustrated herewith. This new slub catcher is the result of several years of development work, and, the manufacturers point out, is suitable for all kinds of yarn, and is simple and easy to adjust. Adjustment is made entirely by the small lower screw shown on the left of the illustration. The yarn is automatically positioned so as to put the slub on the top of the roll and throw it in contact with the blade, it is pointed out. Simplicity of threading is another feature that is stressed.



New slub catcher

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New Coupling

The Morse Chain Company, Ithaca and Detroit, division of Borg-Warner Corporation, announce a new and improved flexible coupling, a companion to the Morse standard coupling—the Morflex—using a specially developed rubber as the flexing medium, simple in design and based on best recent practice. The flexing member is a complete unit comprising four moulded non-cold-flow rubber trunnion blocks of special design spaced 90 degrees apart and set, under pressure, into a two-piece riveted steel housing. The rubber trunnion blocks are provided with steel cores of bushings also set under pressure into the blocks. The rubber is therefore always under pressure, which condition, it is known, prolongs its life qualities, the manufacturers explain. Two diametrically opposite blocks are bolted respectively to the armed steel driving and driven flanges which are mounted on the shafts to be connected. Thus all metal parts are rigid and all relative motion confined to the live non-cold-flow rubber. There is no metal contact between the flanges, the only contact between the two shafts is through the flexible rubber bushings or blocks. There is no movement between rubber and metal, all flexing being entirely within the rubber. Shocks and uneven impulses are absorbed and sudden reversal can take place without damage.

:: :: ::

Stewart Acquires Line of Metal Folding Chairs

The Stewart Iron Works Co., Cincinnati, Ohio, have recently acquired a line of metal folding chairs, which are described in a recent bulletin of the company. This type of chair, in various models, meets with popular use for various auxiliary seating purposes in and around the mill and for village gatherings.

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History of Anti-Friction Bearings

The Fafnir Bearing Co., New Britain, Conn., have compiled in booklet form, "An Outline of History for Anti-Friction Bearings", consisting of a series of articles that had previously appeared in the company's house organ, "The Dragon". The pamphlet gives in interesting style the history of anti-friction bearings and their application to various industrial uses.

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Haveg Catalog

Haveg Corporation, Newark, Del., have just issued a new catalog on Haveg corrosion resistant chemical equipment, which is the second catalog issued since the formation of the Haveg Corporation, and illustrates equipment in which this material is used in the construction.

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Catalog on Flexible Couplings

Link-Belt Co., 910 S. Michigan Ave., Chicago, Ill., have completed a new illustrated catalog on flexible-shaft-couplings. Three different types are tabulated and priced, with special emphasis on type RC, which employs Link-Belt Silverlink roller chain for flexibly connecting the two toothed coupling halves. Both revolving and stationary types of automatic-lubricating casings are included.

Aluminum Blow-Down Pipe

An unusual application of aluminum has been made in the form of a blow-down pipe for removing lint from ceilings and overhead equipment in cotton mills, it is announced by the Aluminum Company of America, Pittsburgh, Pa. A piece of aluminum pipe is flattened at one end to form a nozzle, and attached at the other end to an air hose. According to J. F. Nation, of the Tull Rubber & Supply Co., Atlanta, Ga., who developed it, the aluminum blow-down pipe is much lighter in weight than the wood pole and rubber-hose usually employed for this purpose; one man can handle it with ease.

The pipe consists of a section of ½-inch aluminum pipe welded to a section of ¾-inch pipe of the same length. The total length varies from 10 to 15 feet depending on the height of the room in which it is used. An air-hose connection is made to the ¾-inch pipe, while the opposite end of the ½-inch pipe is flattened into a nozzle. Only stock sections are used in fabricating an aluminum blow-down pipe. It is pointed out that, in addition to its lightness, this type of blow-down equipment is stronger and more rigid than that formed by attaching an air hose to a wood pole; and that it can be used for removal of lint with less fatigue to the operator.

:: :: ::

Constant Level Oil Control

The Lunkenheimer Co., Cincinnati, Ohio, have developed the Alvor constant level oil control, to automatically maintain a constant oil level in ring-oiled bearings or anti-friction bearings suitable for oil-bath lubrication. The device feeds only enough oil to maintain the required level, and as long as any oil shows in the glass bottle of the device, none need be used. This device operates on the liquid seal principle. It feeds only when the oil level in the bearing drops below the end of the shank, breaking the liquid seal and permitting air to enter the bottle. To refill, the bottle with its base may be lifted out of the tee fitting without disturbing any connection.

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Foxboro Bulletin

The Foxboro Company, Foxboro, Mass., have issued a new 40-page bulletin which describes completely the company's line of pressure instruments—recording, controlling, and indicating. It is known as Bulletin No. 185.

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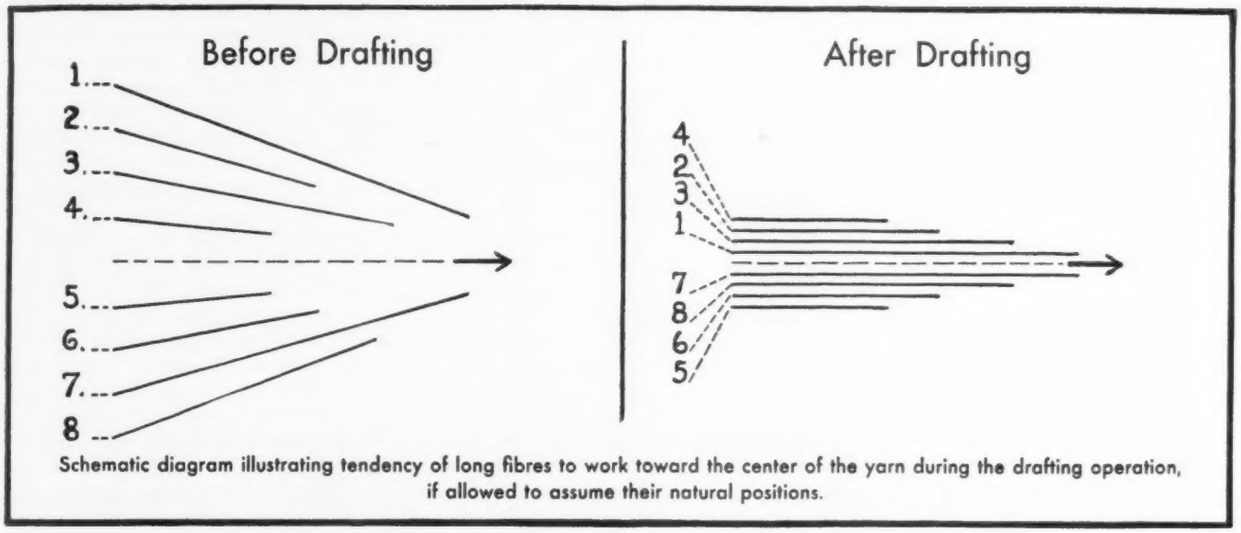
Gearflex Coupling Catalog

Farrel-Birmingham Company, Buffalo, N. Y., have issued Bulletin No. 437 describing their Gearflex coupling, of the double and single engagement types.



Schematic diagram illustrating tendency of long fibres to work toward the center of the yarn during the drafting operation, if allowed to assume their natural positions.

WHY H & B LONG DRAFT SPINNING MAKES A BETTER YARN

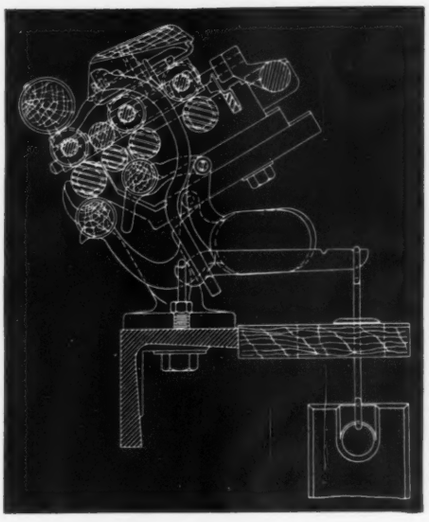
DURING the drafting operation, the longer fibres in roving, if allowed to assume their natural positions, will be pulled toward the center line of draft, while the shorter fibres will tend to move outward (see diagrams). This is essential for the making of a good yarn.

If this is permitted to happen, the natural result is a stronger and more uniform yarn. This is so because the longer fibres (forming the core) are not subjected to so much angular stress as they would be if twisted around the shorter fibres. Being relieved of this excessive angular stress, they have less tendency to break up into shorter fibres.

H & B Long Draft Spinning gives the fibres more opportunity to assume their natural positions during the drafting operation than do other systems, because it does not hamper the natural movement of the fibres with belts or other devices.

Roller No. 2 in the H & B system performs the same function as do the belts in other systems. That is, it prevents sagging and controls the shorter fibres. However it does not interfere with the natural movement of the fibres, because it makes a single point contact rather than a continuous contact. Furthermore the bite of this roll is not carried so near to the front roll as in belt systems, so that a *natural arrangement of the fibres occurs and "plucking" is prevented.*

Note that in this four-roller system, fly (and other waste) has an opportunity to fall clear. It does not bunch up and is not carried into the yarn.



The H & B Four-Roller system, being simpler, is of course cheaper to instal and to maintain than more complicated systems, also cleaner. Specify H & B and get better quality as well as lower operating costs.

H & B AMERICAN MACHINE COMPANY

Cotton Preparatory and Spinning Machinery

PAWTUCKET, R. I.

BOSTON OFFICE, 161 Devonshire Street,

ATLANTA OFFICE,

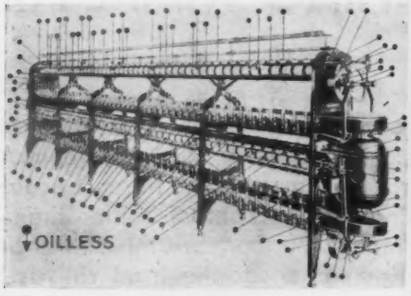
815 Citizens and Southern National Bank Bldg

H&B FOUR-ROLLER LONG DRAFT SYSTEM

The Oilless Monarch Twister and "Stonington" Winder

Every producer of silk and rayon yarns recognizes the extreme importance of keeping the product free from spots of lubricating oil or grease from the machines. In the new Oilless Monarch twister, the Atwood Machine Co., Stonington, Conn., working on the theory that "If you don't use oil you can't get oil spots" and taking advantage of recent developments in the application of oilless bearings, have replaced in the new machine all bearings which threaten the cleanliness of the product, it is explained.

A standard double deck oilless Monarch twister, it is pointed out, provides 96 oilless bearings. All the shaft hangers are now oilless, preventing oil dripping down on spindles or on the cork-covered take-up rolls. On the motor-



The "Oilless" Monarch twister

end, the take-up shaft bearings, traverse slide, gear bearings, cam rolls, traverse levers, and the traverse cam drive are all oilless; on the other end, all gear bearings and the traverse shaft are oilless. There is, the manufacturers point out, no place on the entire machine where an oil can could be used, except when the machine is shut down for regular inspection.

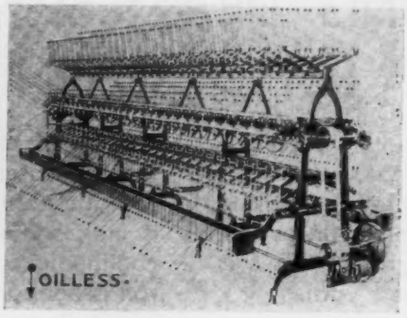
It is pointed out that there are three savings effected: The time required to go over the bearings every day; the cost of oil; and, most important, an oilless production from the machine, now available continuously with only a normal inspection at infrequent intervals when the machines are shut down.

The same principle has been applied to the company's line of "Stonington" winders. On a 120-spindle winder, these bearings take care of 544 friction points.

The secret of oilless operation, it is explained, is in the removable oilless bushings, of which three types are used: impregnated wood, impregnated metal, and solid metal with wooden wicks. The first is of specially selected hard wood, impregnated with oil under patented processes. (Bushings of this type have been used for years in 5B feed roll bearings and more recently in Stonington winder fingers.) The second is a specially developed porous bearing metal, containing a large percentage of oil in the artificial pores of the metal. The third type is a solid alloy metal bushing fitted with wooden wicks which feed oil as needed to the bearing surface from a self-enclosed oil chamber. All three types, in practice, release just enough of the oil they contain to form an oil film, it is explained; and are self-lubricating for the life of the bearing; without possibility of creep or drip.

While the complete application is available on only new machines, almost all of the oilless parts are interchangeable with the old ones, which may be replaced with the new type.

In the new model Stonington winder, which incorporates the oilless feature, are several other improvements in de-



The "Oilless" Stonington winder

sign, for achieving efficiency and economy through simplicity. In the double deck model, winding from both decks is accomplished by using only one take-up shaft having large friction wheels to provide ample clearance for the bobbins, at the same time obtaining full contact. A power saving is effected in using only two shafts to drive four rows of spindles. Baffle plates between upper and lower deck bobbins are used to eliminate interference and allow compactness and simplicity in design. The unit assembly of the motor drive is simple, to assure correct adjustment and alignment and easy maintenance; the same is true of the upper cross-head. A safety feature is the locking of the traverse bar in the finger.

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Cluett, Peabody Acquire World Control of Shrinking Patents

Negotiations giving them ownership and world-wide control of all known patents for compressive shrinking of textiles have been concluded in England by Cluett, Peabody & Co., Inc., it is announced. To the master patents of Cluett, Peabody & Co., Inc., will be added the patents of John H. Wrigley and Alexander Melville, engineers and directors of The Bradford Dyers Association, Ltd., Bradford, Lancashire, England. The combined group, involving over 200 patents and pending applications, covering both process and apparatus, will be available for licensing in all countries by Cluett, Peabody & Co., Inc. It is expected, with the acquisition of the Wrigley-Melville patents, that the Sanforized process of controlled shrinkage will be extended into the sheer fabric and rayon fields.

Sanford L. Cluett, of Cluett, Peabody & Co., Inc., was the first to invent and develop compressive shrinking of textiles. His inventions, known as the Sanforized process of controlled shrinkage, have been licensed to 36 cloth finishers and mills, operating 49 machines in the United States, Canada, and abroad. The Bradford Dyers Association, Ltd., both in England and the United States, will become licensees, operating under all patents, it is announced.

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Gates Added to List of Multiple V-Belt Licensees

Gates Rubber Company, Denver, Col., have been added to the list of belt and sheave manufacturers licensed by Allis-Chalmers Manufacturing Co., of Milwaukee, Wis., under United States Letters Patent No. 1,662,511 relating to power transmitting mechanism, commonly known as multiple V-belt drive. The complete list of belt and sheave manufacturers thus licensed follows:

The American Pulley Company, Philadelphia, Pa.; The Dayton Rubber Manufacturing Company, Dayton, Ohio; R. & J. Dick Co., Inc., Passaic, N. J.; Dodge Manufacturing Corporation, Mishawaka, Ind.; The Gates Rubber Company, Denver, Col.; L. H. Gilmer Company, Tacony, Philadelphia, Pa.; Goldens' Foundry & Machine Company, Columbus, Ga.; The B. F. Goodrich Rubber Company, Akron, Ohio; The Goodyear Tire & Rubber Company, Inc., Akron, Ohio; W. A. Jones Foundry & Machine Company, Chicago, Ill.; The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.; The Medart Company, St. Louis, Mo.; The Ohio Valley Pulley Works, Maysville, Ky.; Pyott Foundry & Machine Company, Chicago, Ill.; Rockwood Manufacturing Company, Indianapolis, Ind.; T. B. Wood's Sons Company, Chambersburg, Pa.; and Worthington Pump and Machinery Corporation, Harrison, N. J.

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New Catalog

Crocker-Wheeler Electric Mfg. Co., Ampere, N. J., have issued a new catalog which gives illustrations and descriptions of the company's line of alternating and direct current motors, generators, motor generator sets, speed changers, flexible couplings, etc.

USC Igepons

The leveling and penetrating Auxiliary for all classes of dyestuffs on all fibres

Also a most efficient stripping agent

•

For full particulars apply—

GENERAL DYESTUFF CORPORATION

GDC

230 Fifth Avenue, New York, N. Y.

Only for men who are

—the first special Cotton Mill belt

THE chances are that at some time in the past you yourself have tried out rubber and fabric belts. You found they didn't slip like leather. Your machine speeds were uniform. For a few months everything went swimmingly. Then the fun began.

Instead of stretching, according to custom, they built up terrific tensions . . . cracked under the strain of production . . . frayed at the edges . . . pulled out fasteners . . . burned out bearings and eventually failed. Sadder and wiser, you went back to leather . . . thoroughly sore on the product of your own industry as a belting material.

But although you may find it difficult at first to believe, the very quality which caused these earlier failures in *belts that would not relax under tension* was the quality responsible for their ultimate success when properly applied to cotton mill conditions. It took two important discoveries to demonstrate that fact. First, Goodrich Application Engineers found out what keeps rubber and fabric belts from shrinking on the job; and second, Goodrich was able to bring out a new and better type of rubber and fabric belting, especially designed for cotton mill drives—called Highflex Junior.

Goodrich Highflex Junior represents a cooperative effort between

● *SACO-PETTEE CARD—MAIN CYLINDER DRIVE showing rubber and fabric belts applied endless in 1932 and still in perfect condition. These belts have maintained uniform tension and no take-up has been required. Note that despite constant rubbing where belts are crossed, it is scarcely possible to find where splices were made.*

Goodrich

not HIDEBOUND

the cotton and rubber industries. Its duck is different from any that was ever before used in rubber belting. It differs in quality of yarn, nature of weave, percentage of crimp, and ratio of moisture at various stages of manufacture. There are more plies with greater structural strength to a given thickness. The rubber used is specifically compounded to give more flexibility, better gripping surface, and longer life. *When properly applied,* it never shrinks, nor subjects fasteners and machines to undue strain.

With the recent development of new, practical field vulcanizers, it is now possible—whenever the circumstances require, to make Highflex Junior endless on the job.

SACO-PETTEE SPINNING FRAME—Equipped with Goodrich rubber and fabric belting before Highflex Junior was developed; but in excellent condition after five years of continuous service, because applied with proper allowance for shrinkage.

Highflex Junior is the result of a deliberate attempt to solve the complex belting problems of the cotton industry. How well it succeeds is attested by concrete evidence that is yours for the asking. In a nutshell, Highflex Junior is superior to ordinary cotton mill belts, because—

1. It maintains higher, more uniform speeds;
2. It requires less attention, less taking up;
3. It operates more smoothly, with less vibration;
4. It costs ⅓ to ½ the price of ordinary belting and by increasing production pays for itself within a comparatively short time.

Call in the Goodrich distributor or write direct for further information about "the first special cotton mill belt". . . The B. F. Goodrich Rubber Company, Mechanical Rubber Goods Division, Akron, Ohio.

●

GOODRICH MECHANICAL RUBBER GOODS FOR THE TEXTILE INDUSTRY INCLUDE:

- *Transmission Belting*
- *Conveyor Belting*
- *Air, Water, Suction, Steam and Fire Hose*
- *Roll Coverings*
- *Packing . . . and*
- *Miscellaneous Rubber Items*

ALL *products problems* **IN RUBBER**

Highflex Jr. Belting

NRA MEMBER U.S. WE DO OUR PART

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

Union Special Expands Sales and Service Activities

Union Special Machine Co., 400 N. Franklin St., Chicago, Ill., have recently expanded their sales and service activities with the creation of a new sales division, a new service department, and the advancement of six members of the organization. The new sales division embraces the territory covered by offices in Chicago and Atlanta, Ga., and is under the supervision of A. E. Brauch, with headquarters in Chicago; Mr. Brauch is succeeded as manager of the Chicago sales office by T. C. Wiebers. A. J. Feigel now heads the sales promotion department where he previously served as assistant to Mr. Wiebers.

The new service department has been organized to supplement the various branch offices in taking care of orders from customers for all spare parts and needles. This work is being carried on by Robert Taubert, who will also offer consultation to manufacturers who desire to organize their own departments for spare parts.

A third important change is the appointment of G. C. Cooper, previously manager of the company's sales office in Philadelphia, to do research work on the co-ordination of machines with products for the purpose of securing greater efficiency and economy for customers. Mr. Cooper is succeeded at Philadelphia by T. M. Murphy, who has had wide experience in the textile field with Union Special and other organizations.

:: :: ::

Carolina Specialty to Handle Morrison Lines

Carolina Specialty Co., Charlotte, N. C., have been appointed as southern representatives for the Morrison Machine Co., 1171-1225 Madison Ave., Paterson, N. J., manufacturers of dyeing, finishing and printing machines, and Sanforizing equipment.

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Standard Textile Chemical Co. Announces Incorporation

Charles W. Carvin, well known throwster, has announced the establishment of the Standard Textile Chemical Co., a corporation formed to manufacture and sell chemicals in the textile field. At the outset the company will concentrate its efforts upon sizing and related materials. B. L. Hathorne has been developing new sizing products for the new firm for some time and has been retained by the company to continue the development of sizing and other products for the textile industry. The plant of the new firm is located in Conshohocken, Pa., with office at 450 Seventh Ave., New York City, and laboratories at 114 East 32nd St., New York City.

:: :: ::

Carl Epps Is Now Representing Torrington

Carl Epps, of Rome, Ga., is now a traveling representative for The Torrington Co., Torrington, Conn., his territory emanating from the Greensboro, N. C., office. Mr. Epps was at one time connected with the Climax Hosiery Mills as manager and buyer. Later he became superintendent of the Champion Knitting Mills. In 1930 he became associated with the Tubize Chatillon Corp., in the research department, serving particularly the southern territory in matters of experimental knitting, testing, sales service and sales promotional field work.

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"Water Filters and Filtration Equipment"

This is the title of a new book, containing for the textile man, a discussion of the subject of water filtration, which it is pointed out, involves the use of chemicals for coagulation and precipitation of foreign matter, the removal of iron, oil, manganese and the production of clean, clear water suitable for the exacting requirements of the textile industry.

This book contains a complete description of these processes, with especial emphasis on the latest developments. The book is published and is available from The Permutit Company, 330 West 42nd St., New York City. It gives full information on the company's newly developed single valve control.

Other features of the book include tables of specifications for standard filters, a clear explanation of the mechanics of filtration, and illustrations of special features. Recently developed types of chemical feeds and their important bearing on coagulation are thoroughly discussed and illustrated.

:: :: ::

Tom Marlow and Van Loan Manufacturing Oil Specialties

Thomas A. Marlowe, Inc., with offices and plant at 611 South Hamilton St., High Point, N. C., are in full production in the manufacture of textile oil specailties, etc. The concern, which also acts as manufacturers' agents on dyestuffs and chemicals, is headed by Thomas A. Marlowe, who has been serving the textile plants in the South in this kind of work for the past 13 years. His associate is J. W. Van Loan, who is well known in the chemical and oil specialty field. Before becoming associated with Mr. Marlowe, he was for 12 years head chemist for a large oil specialty organization.

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Group Life Insurance for Mill Employees

A group life insurance policy has recently been acquired by the Cross Cotton Mills Company, of Marion, N. C., for the protection of 150 employees, through the Prudential Insurance Company of America. The amount of the policy is $75,000, each worker being eligible to coverage of $500. The policy is of the contributory type, the employees themselves paying a part of the premiums and the employing company assuming the remainder of the expense.

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Shull Represents Westboyd Chemical Co.

The Westboyd Chemical Co., Inc., 612 West Lake St., Chicago, Ill., textile manufacturing chemists have appointed Walter G. Shull, of Greenville, S. C., as their sole sales agent in the South. Mr. Shull has been a sales representative in this territory for the past 20 years and is well known in the textile industry.

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Willcox & Gibbs Moves New England Office

The New England office of Willcox & Gibbs Sewing Machine Company is now located at 85 Kneeland St., Boston, Mass., with A. E. Sanborn in charge as manager. The new location was selected with a view to prompt service to the trade.

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Recent Textile Patents

According to Paul B. Eaton, patent attorney, Charlotte, N. C., Justin F. Waite, of Bronx, N. Y., recently secured a patent on a process of dyeing goods, one claim of the patent reading as follows:

"In the process of producing a light level tint on cotton goods, the steps which comprise suspending the goods in water held at about 170 degrees F. for a short period while flowing ozonated air into contact with the water and the goods and causing flexure of the goods and subsequently applying a dyestuff not normally considered as having affinity for cotton goods so treated and so adhering so small portions of the dyestuff to the goods and coloring the same a light tint."

Another textile patent of interest is that of one to Stephen Miller Fulton of England and assigned to the Celanese Corporation, being patent number 1,935,242, and Claim 1 reading as follows:

"Apparatus for the production of beams or like packages of twisted yarn, said apparatus comprising a plurality of twisting devices each of which is adapted to a yarn more than one turn of twist for each revolution applied to the device and means for winding the plurality of yarns proceeding directly from said twisting device simultaneously into a beam or like package."

The same patentee, Stephen Miller Fulton, also secured a patent, number 1,935,243, Claim 1 reading as follows:

"Apparatus for the production of pirns, bottle-bobbins or like packages of twisted yarn, said apparatus comprising a device adapted to impart more than one turn or twist to yarn drawn from a delivery package for each revolution applied to the device, means for traversing the yarn so twisted on to a yarn support having a conical end, means for rotating the support so as to draw the yarn from the delivery package and to collect it on the support, and compensating means driven in sychronism with said traversing means adapted to insure a constant rate of withdrawal of yarn from the delivery package, so that twist is inserted uniformly along the whole length of the yarn."

According to Mr. Eaton, there was recently granted to William C. Wright, of Granite Falls, N. C., a stop motion for braiding and twisting machines. Claim 1 of the patent reads as follows:

"In a rope braiding or twisting machine, in which the rope forming strands converge to a point, a gyratory member subject to the tension on the convergent strands and supported for movement in different directions in response to relative inequalities in the tension of different strands, and stopping means for the machine controlled by said movement of said members."

There was also recently issued a patent to Robert C. Orr, Asheville, N. C., on a cutter for textile material. Claim 4 of the patent reads as follows:

"In a textile cutting machine, a material supporting cylinder, a rotary knife adjacent the cylinder, and a belt for feeding the material from the cylinder to a position where the same can be cut by the knife, the cylinder being provided with a circumferentially extending slot therein, a shaft passing into the cylinder, a disk on the last-mentioned shaft, and flexible teeth on the periphery of the disk projectable through the slot for engaging the material on the cylinder to feed the same to the knife."

THE SEAL IS ALSO A GUARD AGAINST UNDETECTED PILFERAGE « « « «

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PERSONAL NOTES
about Men You Know

J. W. PROCTOR, formerly associated with Wellington Sears Company of New York City, has been appointed an executive assistant on the Cotton-Textile Institute's staff. It is understood that Mr. Proctor will provide additional assistance to Mr. Sloan, president of the Institute, in dealing with group problems and with certain aspects of the processing tax and code administration. Mr. Proctor's appointment involves no changes in the existing staff of the Institute.

WINDER GARY has resigned as general superintendent of the Hannah Pickett Mills, Rockingham, N. C. Prior to going to Hannah Pickett six months ago, Mr. Gary had been superintendent of the Ware Shoals (S. C.) Manufacturing Co.

Mr. Gary has become superintendent at Edna Mills Corp., Reidsville, N. C., since leaving Hannah Pickett, succeeding the late L. C. COGGINS.

WALTER DILLARD, JR., has resigned as superintendent of the Sibley Manufacturing Co., Augusta, Aa.

P. W. ELLIS has succeeded Mr. Dillard as superintendent at Sibley Manufacturing Co. Mr. Ellis was at one time assistant superintendent at Anderson (S. C.) Cotton Mills, later with the Loring mills in South Carolina and the New England Industries, Inc., mills in Maine.

W. A. HUNT recently resigned as overseer of carding at the Sibley Manufacturing Co., Augusta, Ga., to become general overseer of carding, spinning, spooling and warping at the Santee Cotton Mills, Orangeburg, S. C. On leaving Sibley, Mr. Hunt was entertained with a barbecue dinner by the supervising force of the carding department, which included section men, second hands and overhaulers. The employees of the carding department presented Mr. Hunt with a Masonic ring; and the superintendent and overseers also made him a present.

W. E. RAMBOW, formerly with the Adams-Swirles Cotton Mills, Macon, Ga., has become overseer of carding at the Sibley Manufacturing Co., succeeding Mr. Hunt.

R. L. HUCKEBA, JR., has been promoted from assistant master mechanic to master mechanic at the Sibley Manufacturing Co., Augusta, Ga., succeeding F. T. WILHITE, resigned.

C. W. STROBHAR, well known in the cotton trade, is now representing Hayden, Stone & Co., 25 Broad St., New York City, cotton department. Mr. Strobhar is making his headquarters in Charlotte and is calling on the southern mills.

JAMES FAZACKERLEY, of Pawtucket, R. I., and for a number of years overseer of weaving at Manville-Jenckes Corp., has been made superintendent of weaving at the Berkshire Mills of the Berkshire Fine Spinning Associates, at Adams, Mass.

FRED W. STEELE has been made general manager of the Grinnell Mfg. Co., New Bedford, Mass., which will resume operations shortly.

I. B. COVINGTON, vice-president and superintendent of the Wade Mfg. Co., Wadesboro, N. C., has been made also president and treasurer of the Pee Dee Manufacturing Co., Rockingham, N. C., succeeding GEORGE P. ENTWISTLE, resigned. Mr. Entwistle will continue with the mill as assistant treasurer. Mr. Covington will retain his position at Wadesboro. Prior to assisting in the organization of the mill there, Mr. Covington had for ten years been superintendent of the Florence Mills, Forest City, N. C.

ROBERT B. HORSLEY, formerly superintendent of the West Boylston Mfg. Co., Montgomery, Ala., and more recently sales representative for Stein, Hall & Co., has become production manager and overseer of slashing and warp preparation at the Pepperell Mfg. Co., Opelika, Ala. D. F. POOLE has resigned as overseer of weaving at this plant. D. D. GOLDEN has been promoted to overseer of weaving, from second hand, succeeding Mr. Poole.

RALPH J. SAULS, C. P. A. (Ga.), has become associated with William H. James and Associates, accountants and engineers, Hurt Building, Atlanta, Ga., in the practice of auditing and general accounting. WM. H. JAMES and ERNEST G. FIELD are members of the organization.

K. H. MOSES has become overseer of weaving at the Social Circle (Ga.) Cotton Mills, succeeding A. A. HURLEY, resigned. Mr. Moses was formerly at the Cannon Mill No. 4, Kannapolis, N. C.

ELROY CURTIS was elected as president of Southeastern Cottons, Inc., at a recent meeting of the board of directors. HOWARD E. COFFIN was re-elected as chairman of the board.

J. D. TEMPLETON has become overseer of spinning at The Springs Cotton Mill, Plant No. 1, Fort Mill, S. C., succeeding O. B. AYERS, resigned. L. R. CHAMPION is overseer of carding at the same plant. He was formerly with the Alexander Mills, Forest City, N. C.

G. C. WYRICK, of the Wyrick Hosiery Mills, Mebane, N. C., has become manager of the Hickory Hosiery Mills, Hickory, N. C., succeeding E. W. WALTON, resigned.

L. A. RAMSEY has become manager of the supply department of the Pelzer Mfg. Co., Pelzer, S. C. He was formerly supply man at the Whitney (S. C.) Manufacturing Co.

J. W. JENKINS has become superintendent of Steele's Mills, Rockingham, N. C., succeeding J. C. MONTJOY. Mr. Jenkins was for years superintendent of Hannah Pickett Mills of Rockingham, having removed to Charlotte during the early part of the year.

Obituary

ROBERT E. BUCK, southern manager of Arnold, Hoffman & Co., of Providence, R. I., with headquarters at Charlotte, N. C., passed away suddenly at his home in Charlotte on December 10th, following a heart attack. He was 52 years of age and is survived by Mrs. Buck, two sons—ROBERT E. BUCK JR., of Greenville, and HAROLD E. BUCK, of Atlanta—his father, and one sister. Mr. Buck had been a resident of Charlotte for 30 years, and was a native of Vermont.

HUGH E. MORRIS, 53, for a number of years connected with the Brown-St. Onge Co., of Providence, died recently at Charlotte, N. C., where he had made his home for many years.

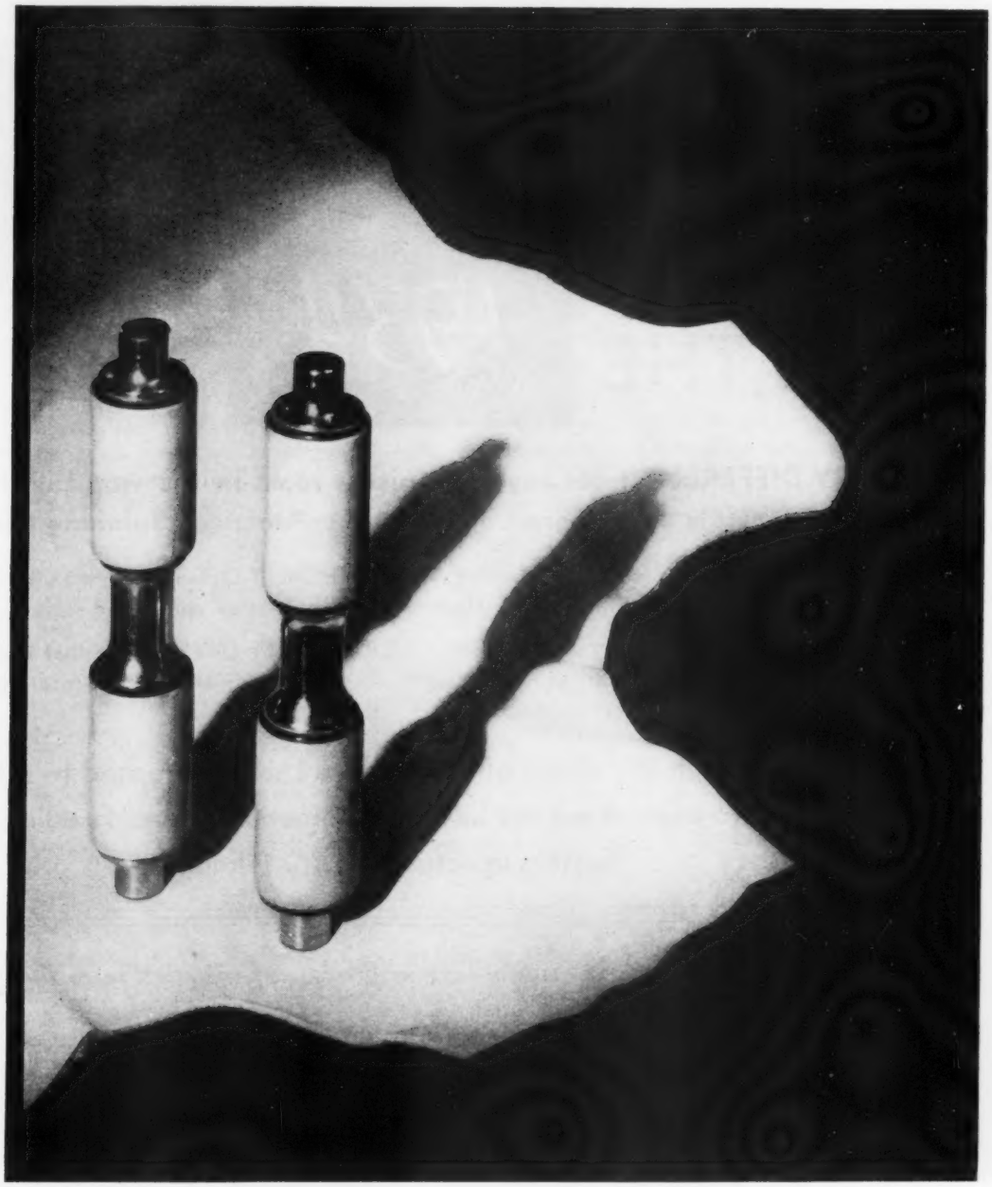
S. L. MCCRACKEN, 55, who had been superintendent of Steele's Mills, at Rockingham, N. C., and the Fountain and Hart Cotton Mills at Tarboro, N. C., died recently at his home near Rockingham, where he had for some months been engaged in farming.

CHARLES F. CREDO, Philadelphia manager for John Campbell & Co., of New York City, passed away suddenly on November 20th, at the age of 44 years. He had been connected with the Campbell organization for 21 years. He is survived by Mrs. Campbell and two children.

SPINNA CALF . . .

Drafts Smoothly—Wears Slowly . . .

THE smoothest of drafting is obtained with Spinna Calf; at the same time it wears slowly without the inconvenience and expense of frequently rebuffing or recovering.



A. C. LAWRENCE LEATHER CO.

Specialists in Textile Leather

BOSTON, MASS. PEABODY, MASS. GREENVILLE, S. C.

American Spinning Company — *Greenville, South Carolina*

Here is THE 1934 picker room!

RADICALLY DIFFERENT from any other picker room in the world is this installation recently completed by Saco-Lowell for the American Spinning Company

RADICALLY DIFFERENT in the method of feeding — improves selvage-to-selvage evenness, with extra cleaning accomplished.

RADICALLY DIFFERENT in the simplicity of the feeding arrangement—no cumbersome gate control mechanisms.

RADICALLY DIFFERENT in the utter absence of feeders — eliminates all aprons and scores of moving parts.

RADICALLY DIFFERENT in that there is no dust cellar — the air is filtered in the room, not exhausted from the room.

Communicate with any of our offices and we shall be pleased to arrange for you to inspect a Saco-Lowell Automatic Control Feeding System in actual mill operation.

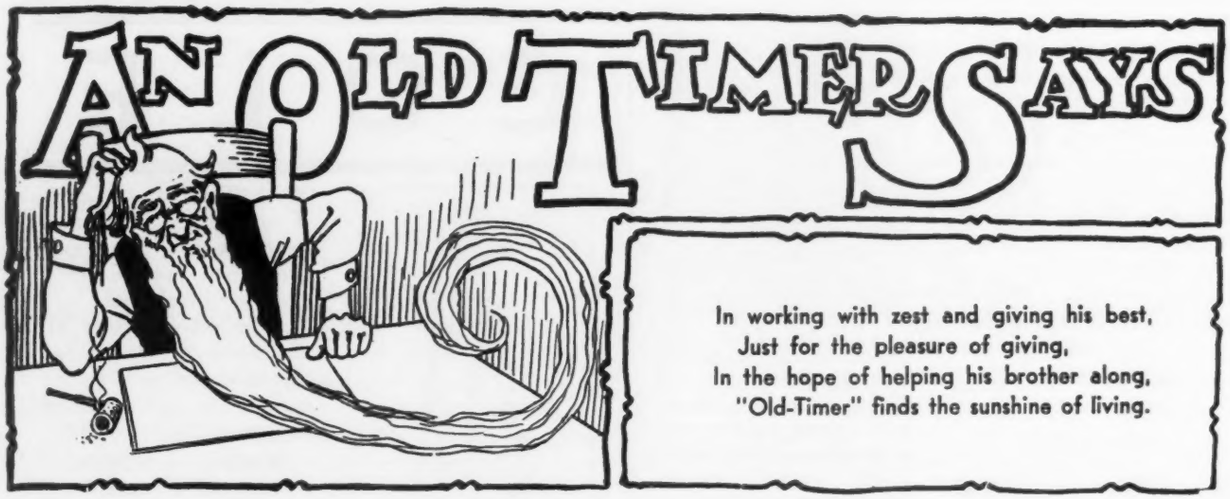
S-L Automatic Control Feeding Systems are in process of installation in the following mills:

THE WHITE MILLS OF NEW HAMPSHIRE	Peterborough, N. H.
JOHNSON & JOHNSON	Chicago, Ill.
AMERICAN SPINNING COMPANY	Greenville, S. C.
STERLING COTTON MILLS	Franklinton, N. C.
WISCASSETT MILLS COMPANY	Albemarle, N. C.
DURHAM HOSIERY MILLS No. 6	Durham, N. C.
DURHAM HOSIERY MILLS No. 7	Chapel Hill, N. C.
CHICOPEE MFG. CO.	Gainesville, Ga.
THE SPRINGS COTTON MILLS	Baldwin Plant, Chester, S. C.
PEE DEE MFG. COMPANY	Rockingham, N. C.
CANNON MILLS CO., IMPERIAL COTTON MILL	Eatonton, Ga.
GOODYEAR CLEARWATER MILLS	Cedartown, Ga.

SACO-LOWELL SHOPS

147 MILK ST., BOSTON, MASS.

CHARLOTTE, N. C. ATLANTA, GA.
GREENVILLE, S. C.


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

The Story of Old Timer's Methods of Working and Management

Part Seventeen—Continued from November Issue

THIS, the seventeenth installment, picks up the story of Old-Timer and Jim, as to keeping records in the weave room, where the sixteenth section, in the November issue, left off. If you want copies of the previous installments, let us know . . .

(Note: Since this series is written in conversational style, it should be borne in mind that those paragraphs in regular type represent OLD-TIMER's part of the conversation, and those in *italics are* JIM's part.

Now, we will pass on to the next item, which is loom brakes, JIM, just plain brakes, and the record shows that the overseer inspected the brakes on part of his looms on the following dates:

3/1 4/23 5/2 7/29 9/3 9/12 10/2 11/5, etc., etc.

In keeping a record of any item which you cannot get over on all the looms at one inspection, you should insert the number of the loom where you start and stop the inspection, then you can start the next inspection time at the loom where you stopped last. This way 3/1, (Looms 276 to 425); 4/23, (Looms 425 to 575); 5/2, (Looms 575 to 800); etc.

Very few overseers and superintendents realize how important the brake is on a loom, not only from a mechanical standpoint so far as fixing goes, but even more important, the convenience it is to the weaver. If the brake is set properly it also enables the weaver to operate more looms and get more production per loom.

Hold on there, OLD TIMER, *you are sure giving brakes a lot of credit, so suppose you explain one or two of those items so we can see if we can agree with you.*

O. K., JIM. Theoretically, when a loom stops, it should stop with the harnesses practically level and the shuttle in the box, so when the weaver has pieced the broken end all he has to do is pull the lever on. However, when the brake is not working properly the shuttle usually stops in the warp and oftentimes the loom stops just as the crank turns over top center. Now here is what the weaver has to do before starting to piece the broken warp thread:

No. 1, push shuttle through warp and into box.

No. 2, level harness.

No. 3, And in many cases pull the check strap forward to prevent the loom from slamming when the belt is pulled on.

These three movements will take as much time as it will take to piece the broken end, therefore, a weaver can just about start up two looms, where the brakes are working properly, in the time he can start up one loom with brakes out of order.

Well, OLD TIMER, *you should have cork in your brakes like these new looms we have and you would not have so much trouble keeping the brakes so they would stop the looms.*

Yes, JIM, we are putting the corks in our brakes as fast as we can.

Putting corks in yours? I did not know your brake was heavy enough or had enough stock in it to drill holes for the corks.

Oh yes, JIM, we have a master mechanic who usually can find some way to adopt most any new idea to our old machines, therefore, he rigged up his drill press with a vise to hold a kind of template he made to hold the brake. The template has holes to represent the spacing for drilling the holes for the corks. This enables a man to drill them very fast and it is no job at all to take a hammer and drive the corks into the holes. This gives us a new cork lined brake

JOHNSON RAYON WARP SIZERS

... Used for all types of yarn... all kinds of fabrics ... all over the world.

To Reduce Weaving Costs and Eliminate "Seconds"

USE THE "JOHNSON"

Many manufacturers have effected savings of thousands of dollars a year by installing Johnson Sizers.

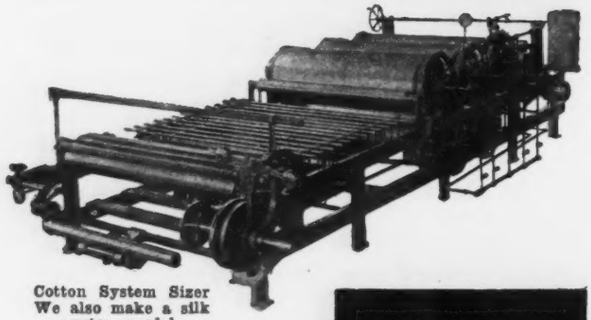
Here are three of the many reasons why—

1—They cut their direct sizing costs because "Johnsons" are more economical to operate and faster (25-40 yards a minute).

2—They have speeded loom production in many cases as much as 100% because the Johnson system of temperature and tension control prevents baked and strained yarn and so avoids one of the most frequent causes of end breaks in the loom.

3—They eliminate losses due to "seconds" traceable to faulty sizing.

May we show you how a Johnson will save you thousands of dollars a year? A line from you will bring full details—no obligation.



Cotton System Sizer
We also make a silk system model.

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CAROLINA SPECIALTY COMPANY, Charlotte, N. C.
JOSEPH BARNES, New Bedford, Mass.
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Charles B. Johnson
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TANKS and towers constructed by COLE have been erected and have given long years of efficient, trouble-proof service in every section of the country. They are designed to meet any requirement. Let us quote you on

TANKS TOWERS
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ACID TANKS
STAND PIPES
SMOKE STACKS
CHEMICAL VESSELS
OIL TANKS
AIR RECEIVERS
WELDED PIPES AND TANKS
MONEL TANKS, KETTLES

R. D. COLE MANUFACTURING CO.
NEWNAN *EST. 1854* GEORGIA
FABRICATORS OF STEEL AND ALLOY STEEL PLATE

The American Business Paper

ONE of the vital reasons for the tremendous commercial development in the United States is the American business press. The American business man, manufacturer, wholesaler or retailer, is presented each month with a veritable encyclopedia of information in his chosen field. To the schools of America, and the daily press, as instruments of democratic education must be added our business press with its specialized service.

The American Business Paper is one of the evidences of America's willingness to learn. Like its widespread system of democratic education, the Business Paper serves an industry's need for impartial information, placing at each reader's command the same accumulation for data, for such use as he may make of it.

like the ones they are now putting out on the new looms.

And now, what is the next item on your inspection book?

I really expect, JIM, that our readers are getting somewhat "fed up" on this record business, and as we have already given them a description of our record system for every department of the mill except the cloth room, suppose we just ramble along in a general way about a few more items in the weave room and call it a day. (Or rather a night, as all of this work is being done at night.)

Yes, OLD TIMER, *and I understand that is some fine picture they have on at the Rex Theater tonight. Suppose we go.*

Never mind, JIM, just remember you got your first overseer's job as a result of your staying at home nights and working on your mill calculations and reading the text books and other books you promised me to read and study, while the "gang" was going to picture shows, sitting around the barber shop and squandering their time.

And don't forget also that you paid for that first little four-room house you still own by saving the nickels and dimes you would have spent if you had not stayed at home—

Shore! Shore! OLD TIMER, *that's all true, but for goodness sake don't start in to preaching now. Let's go on and finish this series of articles.*

Well, JIM, as we have cut out the explaining of records let me add one or two suggestions about the overseer's work in the weave room. You remember I told you one time that you were too darn busy to run your job, and that holds good not only for many overseers in all departments of the mill but a large majority of the superintendents. In my experience I have found that seemingly contradictory remark to apply to so many jobs in all vocations, that is, men really do get too darn busy to run their jobs. For example: I do not believe any weave room overseer can run his job as it should be run unless he walks up and down his weavers' alleys at regular intervals. He should certainly go over every weaver's alley at least twice a week, matters not how big a job he has.

In walking through the weavers' alleys he will see things he never will see otherwise. He will get in conversation with more of his help and he will know more of what his looms are actually doing before he sees the results at the cloth table.

Most any overseer will agree that he should walk his weavers' alleys; it takes only a small part of his day's time. But how many of them really do walk the weavers' alleys? He has so many other things to do he just doesn't do it, while I claim it is one of the most important duties he has.

In walking the weavers' alleys he should always have one specific thing he is going to look for each day, and not only see that this one thing has his especial attention but record it in his record book so he will know when to specialize on that particular item again. While having this one particular item in mind as he goes along he can of course notice many other items, such as tensions, bad selvages, temples, spitting on the floor, bobbins on the floor, etc. These things he should only notice casually, being certain he is not going to neglect his specialty, that is, the one item he has decided to look at that day and record in his book.

So many overseers just ramble aimlessly around over the room expecting anything that is going wrong to hold up its hand, so to speak, and yell "Here I am, Mr. Overseer, come and have me fixed." The point I am trying to impress on you is, that you should do some *one definite thing* each time you go over your room and that is the only way you will be able to do your best work.

I made it an iron clad rule, when I was overseer of weaving, never to pass a loom which had a new warp just tied on, without stopping that loom to see how the section man had set the harnesses. Neither would I pass a loom where a new shuttle had been installed without stopping the loom to look at the shuttle, and also to see that new pickers had been put on and paralleled properly, etc.

System! System! Gosh! I only wish I could find some way to instill into your mind that system is the one big thing you should try to teach yourself. Then when you are working under a system yourself you will realize the importance of installing it into every phase of your work.

One of the most aggravating things a superintendent or overseer has to contend with is having to tell their subordinates so many times to do a thing before it is done. All right then, why not profit by that experience yourself, and when your superior tells you something he wants done, don't forget it. Put your system to work. Remember that article in COTTON about using a notebook.

(The next installment will wind up the weave room for Old-Timer and Jim, and then, we trust, they will wander into the cloth room.—The Editor.)

Two Preventable Accidents

"One of our members reports that: 'one of their loom fixers received a bad electrical burn while working on an individual drive motor on a loom.' In some way a short occurred and the fuse blew. The loom fixer was not an electrician but in his endeavor to have the loom running and producing cloth, he obtained another fuse, which he pushed into the clips. The resulting arc gave him a bad hand burn. In investigating the accident, the overseers' committee made two suggestions to the management: *First,* no one other than the experienced electrician be allowed to touch any of the electrical apparatus; *second,* which would be costly to follow, that every motor be equipped with a device which would do away with fuses.

"In the corduroy dyehouse of a cotton cloth manufacturing and converting plant, a worker was regulating a valve on a caustic tank. The caustic boiled over, and he sustained second degree burns on his face, eyes —about two-thirds of his body was severely burned. The exact cause of the accident is difficult to determine, but to prevent a recurrence of such a situation, the position of the shut-off valve has been changed. Thus, the man regulating the valve is not in a hazardous position during the operation."—*From Textile Section, National Safety Council, Inc.*

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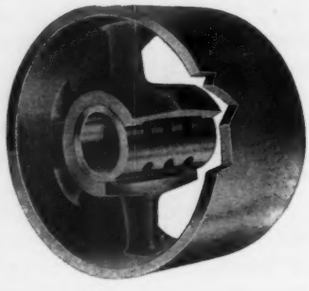

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HOW OTHER MEN MANAGE

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What Feed Plate Setting Is Best?

You are invited to answer this, giving your reasons —and giving other settings for the card . . .

EDITOR COTTON:

I would like to see in the "HOW OTHER MEN MANAGE" department the opinions of some good carders as to what feed plate setting will give the best breaking strength under the following conditions: 12-ounce lap; 120 card draft; 40-grain card sliver; Strict Middling 1 3/32-inch and 1 5/32-inch cotton.

I would appreciate the correspondents giving any further information they desire to furnish as to other card settings under these conditions; that is, settings for other points on the card, but would especially like to have recommendations as to the feed plate settings, for purposes of breaking strength, with reasons why.

D. H. (N. C.)

"Carder" Answers "Wash's" September Questions

EDITOR COTTON:

I should like to try my hand at answering the list of seventeen questions on the card room—particularly fly frames—submitted by our friend "WASH" on page 69 of the September issue.

1. *In a picking machine, what harm can be done by increasing the draft without making other changes?* By increasing the draft, the heavier impurities are not allowed to drop through the grid bars and a dirty lap will be the result.

2. *In setting a beater, what part of the beater box should be considered so that the stock will not be taken around the second time?* The stripping plate. In most all pickers this is made as a part of the casing and is set at the shop to the beater blade and will move with the beater, always retaining the same relation between them.

3. *On a card we set the licker-in to the feed-plate almost to touch. Does such a setting injure the stock, if so what about the action of the Kirschner beater on the finisher picker?* Yes, this injures the stock. If it were possible, and the Kirschner beaters were set as close to the licker-in, there would be injury there to the stock. Kirschner beaters are not set closer than 3/16-inch.

4. *Which is best to extract the foreign matter from the field of action between the licker-in screen and licker-in; properly set mote knives with air admitted at the back of the card or poorly set mote knives with the back of the card airtight?*

Never at any time poorly set mote knives and only properly set knives and no air current.

5. *Do you prefer a heavy lap with a slow feed, or a light lap with a faster speed? Why?* I cannot see that anything is gained either way, that is, one over the other. The following will show that the same number of points on the licker-in are passing through each ounce.

The weights per yard of laps used will be 13 ounces and 8¾ ounces. The 13-ounce lap will be equal to .363-ounce per inch fed at 6.6 inches per minute, equaling 2.39 ounces fed per minute.

The 8.75-ounce lap will be equal to .242-ounce per inch fed at 9.9 inches per minute, equaling 2.39 ounces fed per minute.

Using a 5-point licker-in wire we have 64,633 points passing a given point per minute.

64,633 ÷ 6.6 = 9,792.8 points passing per inch
64,633 ÷ 9.9 = 6,528.2 points passing per inch
9,792.8 ÷ .363 = 26,977 points passing per ounce
6,528.2 ÷ .242 = 26,977 points passing per ounce

These figures show that there are the same number of points passing through the cotton for each ounce, therefore, where can there be a difference? The foregoing assumes that the same weight per yard sliver is made in each case.

6. *If you were going to reduce your carding, how would you do it? Would you reduce the speed of the doffer, the weight of the sliver, or the weight of the lap?* I would reduce the speed of the doffer in preference to either of the others, because when the speed of the doffer is reduced, we automatically reduce the speed of the feed. By reducing the amount fed by this method, we improve the carding, and with a reduced amount fed, it gives the clothing on the licker-in, cylinder and flats less cotton to work in the same time as the greater amount was fed, there being less fibers to handle each part of the card has a better opportunity to perform its work.

7. *Where are humidifiers most helpful on cards?* I would say from past experience that starting in the morning we obtain the most help, of course, there are

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WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

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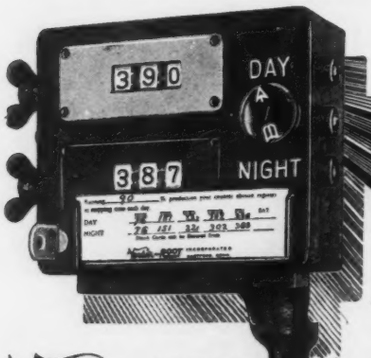

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times throughout the day, especially on a bright sunny day when a high wind is blowing that humidity is helpful.

8. *On drawing, which is the best draft? Why?* The draft equal to the doublings, because you are not trying to overdraw more than can be properly taken care of.

9. *Why is a draft less than 1.00 required between the front drawing and the calender rolls on draw frames?* There should never be a draft less than 1.00 here, if so, there will always be ends down due to the gain of the front roll surface speed over the calender roll surface speed. The draft need not be over 1.02 or 1.03.

10. *Are metallic rolls better than cork or leather on drawing frames?* This will be a hard question to answer because all carders cannot agree on this. I have just been reading of one man who thanks heaven that he has metallic rolls and of another who is grateful that he has leather rolls. Sometimes a man declares himself for a given kind of roll because they are being used where he is working. The best answer to this is from men who are running both in the same mill. I would take either cork or leather in preference to metallic, based upon my experience.

11. *Name the causes of cut webs on drawing frames.* The uneven weighting of the rolls causes most of this trouble; bad rolls will also do this; sometimes gears slipping due to worn pins.

12. *What is the proper draft on a slubber? Why?* The proper draft is one which gives the best results in the finished product. Using a three-roll draft, keeping close to 4.00 has given me best results. Only this week I have seen a new idea arranged on a slubber and good results being obtained with a draft of 6.00.

13. *Which is the best compound for differential motions, the Houldsworth or the new so-called differential?* The best is the one putting the least strain on the cone belt. This, I think, is the Dobson Barlow motion. For simplicity the Houldsworth leads them all, but there is much more friction to overcome here.

14. *We have the bobbin-lead system, and so, if the bobbin leads, how can the spindle or flyer be an aid to the cone belt?* I cannot see where there is any aid by the spindle and flyer to the cone belt.

15. *Why do you find a brake to stop the bottom cone from revolving in the opposite direction at doffing time, or when the bottom cone is raised? Why does the bottom cone revolve in the opposite direction when raised on all makes of fly frames in the bobbin lead system?* I do not agree that the cone revolves reverse on all makes of fly frames when the belt is released, nor on all Houldsworth motions either. I have some frames with the Houldsworth motion where the cone reverses slightly and others with the same motion that do not reverse. The ones that reverse are those where the sun wheel runs on the jack shaft; on the others, where the sun wheel runs on a bearing and is not in contact with the jack shaft, there is no reversing.

16. *What causes tight spindles on fly frames?* Dirt in the bolsters.

17. *What is the best spindle speed on slubber, intermediate, fine and jack frame? Why?* Somewhat under the recommended speed, because slower speed will give a more continuous run with no breakages, thereby increasing production. Supposing there is only one break an hour on a frame and the frame is running 38 hours, this means 38 times the frame must stop. Assuming the frame has 176 spindles, 1⅛-inch diameter front roll, and is making 114 r.p.m., the following will be the amount lost provided there is only one minute lost in piecing up.

$1\frac{1}{8} \times 3.14 = 3.53$ inches circumference of roll. $3.53 \times 114 = 402.42$ inches per minute. $402.42 \times 176 = 56{,}825.92$ inches per frame. $56{,}825.92 \times 38 = 2{,}159{,}384.96$ inches per week per frame. $2{,}159{,}384.96 \div 36 = 60{,}000$ yards lost per week per frame. When this is multiplied by the frames in the room the yardage lost is tremendous. This can be offset by slower speed. Right here somebody will say that slower speed means less production. Yes, it does, and it also means that you can run with less twist. This offsets the other.

I hope some of this has been helpful to others. I know that just writing it has helped me.

CARDER (MASS.)

"Wash" Comes Back at "A. T. G." Again

He gives his own solution to his fly frame question published in July. What say you, "A. T. G."? . .

EDITOR COTTON:

I notice on page 71 of the November issue of COTTON that, in our discussion of fly frame problems, "A. T. G. (S. C.)" has cast his technical and practical knowledge to the winds, and, I judge from the tone of his article, has now become a mind reader. His article is worth reading twice.

My answer to his personal attack as to my mind efficiency follows: One's reputation is made by his neighbors, and like all creators, they make it in their own image. His mind is so centered on proving me ignorant that he has made a very weak attempt to answer the question which appeared on page 83 of the July 1933 issue of COTTON.

"A. T. G." is wrong when he states, "I wish to say a few words in defense of the persons who are the targets for 'WASH'S' contempt—the graduate." I reserve judgment on all textile school graduates who lack knowledge and experience. A diploma from any textile school, like a certificate of character, is a good thing for those who need it. I am against and will not promote any textile graduate that never worked in a mill. I have my company's interest at heart and in mind always. "A. T. G's" attacks on me are getting rather voluminous and I am sure that the boys are getting tired of them. So I am going to disregard now his personal attacks, and again show him up as being far from the practical man which he claims he is.

In the tenth paragraph of his letter in November, "A. T. G." states, "In the past 'WASH' has made an attempt to floor—I'm using his own language—the graduates by offering questions that he thought were difficult. He cannot floor his opponents, for they have, and will continue to answer his problems."

Not yet, my friend. For the question involved was too difficult for you and you had to take the count on the floor. The difference between "WASH" and "A. T. G." is that I give the real answers and at the same time give the reasons, as I will do in this case. On the other hand "A. T. G." guesses at the answers; he lacks the practical knowledge, as he proves in this case. The smaller the think-tank the more room there is in it for a peeve. Now, follow his answer to my question, and here you will find him around the builder motion.

Let's go back now and re-print the original question from July, which said:

> "Here is one that is hard for the practical man and one which will floor the textile graduate.
>
> "On a fly frame every little while ends slacken and then pick up again but in almost every case a few ends break down. There is no slipping of gears in the train of gears from bottom cone gears to bobbin gears. The cones are tight on their shaft and do not slip. All key gears and keys are in perfect condition. When the condition happens the first thing the practical man will do is to put belt dressing on the cone belt or change the cone belt, which will not help the situation.
>
> "This question is a practical one and a very helpful one for the reason that when the foregoing condition does exist it is hard to discover."

Now, let's turn to the "answer" of "A. T. G." on page 73 of the November issue. I quote:

> "Now I will answer his question. I have seen the ends on a frame run tight and then slacken for a short time. The trouble was traced to the stop pawls that check the motion of the ratchet gear or tension gear on the builder motion. I have in mind the English type builder. The stop pawl on the right-hand side of the gear was a little bit higher than the one on the left. This condition permitted the gear to turn through a greater distance before being stopped by the pawl. The pawl on the left side of the tension gear was in such a position that when it came into action on the beginning of the downward motion of the carriage, the tension gear moved through a smaller distance than it did on the upward motion of the carriage. Since the positions of the pawls did not permit the gears to move the same distance on each reversal, the cone belt was, too, not shifted the same distance on the completion of each movement of the carriage. On the upward motion of the carriage, the tension gear moved through a greater distance before being checked by the high pawl, as a result, the cone belt was shipped further than on the downward motion of the carriage and the speed of the bobbins was decreased more, consequently, the speed being decreased out of proportion, the bobbins could not take up the roving as fast as it was delivered and thus the ends were slack. On the downward motion of the carriage, the pawl on the left of the tension gear would come into play but it would not permit the tension gear to turn as far. The cone belt then was not shifted as far as the time of the last reversal and too the speed of the bobbins was not decreased as much as it was on the last reversal, permitting them to take up more roving.
>
> "The stop pawls were adjusted so that on each reversal the gear moved through the same distance and as a result enabled the cone belt to move through the same distance upon the completion of each layer of roving."

True, when a pawl fails to engage the rack gear and allows the rack to make too large a lateral movement, the ends will slacken and remain in that condition until the next movement of the carriage. But "A. T. G." points out that the positions of the pawls did not permit the gears to move the same distance on each reversal, the cone belt was, too, not shifted the same distance on the completion of each movement of the carriage. Is not this a fine explanation from a man who claims he is practical? Every practical man knows that on any fly frame having the English builder (and that is the type of builder that "A. T. G." and I are talking about) that if the pawls do not operate the same on each side that not only the tension will be affected but the bobbin diameter will be larger at one end.

If "A. T. G." were practical he would have known that.

In his eleventh paragraph, in November, "A. T. G." said, "This is the last time that I will bore your readers by entering a discussion of 'WASH'S' problems, for it is a waste of time to discuss such simple things."

So, our friend "A. T. G." died on third base!

I do not know how much time he has spent on his articles, but I do know that he has used up a lot of valuable space in this department without imparting a grain of knowledge.

When I put the question, I had only one object in mind and that was to convey to the beginner or to the young student a good pointer that would help out later on and save a lot of work and worry. "A. T. G." was fartherest from my mind at the time, and he himself is to blame for trying to answer questions he knows nothing about, as I have clearly proven.

Now, he must admit that he is unable to answer what he terms simple things.

In the fourteenth paragraph he intimates that I will "disregard" his "solution" and come to the front with one of my "real answers". Let us see a solution of an explanation; removal of a doubt. Where does his "solution" fit with the question?

Well, the real answer and solution to the problem follows:

The question pertains to the Houldsworth compound. I now refer the readers to Vol. 2 of "Cotton Mill Machinery Calculations" by our friend B. M. Parker. Now turn to page 133 and gaze on Fig. 36 on that page, and picture in your mind, if you can, the stud, on which the idler bevel gear revolves, to be worn badly. It can be seen that any play will allow the idler to bind with the jack shaft gear or with the gear on the sleeve. Such a condition is first noticed by the ends slackening suddenly. The speeder tender calls the fixer, and he may watch the frame for hours and find it to be running all right. The next day the trouble may happen oftener, etc.

I have seen men change the cone belt, and put belt dressing on the cone belt, without of course any results.

The only remedy is a new stud; better still, change the compound and the trouble is over.

I have seen practical men work very hard and at the same time worry, for it is difficult to find or locate this trouble when you lack experience.

Now, a word to "A. T. G." which I hope may help him to employ good judgment:

You can do this, by forming habits of self-reliance, sound judgment, perseverance and endurance, which will one day stand you in good stead. You can so train yourself to right thinking, right acting, that uprightness shall be your nature, and truth your impulse.

WASH (R. I.)

"Wash" Compliments "S. I. C." and Answers His Question.

It may surprise "A. T. G." and others that such a heading is possible—but here it is . . . . .

EDITOR COTTON:

In his letter on page 73 of the November issue, commenting upon the discussion between "A. T. G. (S. C.)" and myself with reference to fly frames, etc., "S. I. C. (N. C.)" shows a different spirit from that of our friend "A. T. G." Read this, his third paragraph:

> "Answering 'WASH' (meaning my question as to why, on a fly frame, every little while the ends slacken and then pick up again, but in almost every case a few ends break down, with no slipping of gears or cones) I would guess that one of the collars holding the bobbin gear shaft in position had come loose or slipped along the shaft, allowing the bobbin gear shaft to sway back and forth. This would cause some of the bobbin gears to move out of mesh with the bobbin whirl and thus stop the bobbins and slacken the ends. And would say that in case of bobbins where the bobbin gear and whirl were meshing shallow, the bobbin was stopped so long while the shaft swayed that the ends came down."

You can tell from reading this answer from "S. I. C." that he is a practical man. What he states about the collar on the bobbin shaft slipping is a common occurrence, but it is seldom that the shaft will get back to its original place and run awhile and slip again. Therefore, I consider that his answer is as good as mine, for what he states will cause the ends to slacken and run tight again, but of course only on one line of bobbin gears.

At the termination of his article in November, "S. I. C." submits the following problem:

> "If I am setting up a fly frame among others of a different make and can't get the right flyer speed, hence the front roll speed desired, can I effect the desired change with the gears? Suppose I have a 45-tooth gear on the jack shaft which drives the spindles and a 48-tooth gear on the top cone, receiving motion through an idler from the twist gear. I put a 48-tooth gear on the jack shaft, which causes the spindles to go 48-45 as fast as they did and I next put a 45-tooth gear on the top cone shaft (a driven gear), which causes the top cone, and hence the front roll, to go 48-45 as fast as they did. The spindles and front roll have now been speeded the same amount and I have an 18-tooth gear on the bottom cone. What size bottom cone gear do I need to make the fly frame run? Is it practical to speed up fly frames in this manner?"

My answer to his question is yes, if the spindle speed is not made excessive. Please be reminded that the greater the spindle speed, the more pressure at the end of the presser pad, which creates unequal conditions.

For the sake of illustration, we will assume that a 48 top gear drives the front roll at 122 r.p.m. On the jack shaft a 45 gear drives the spindle 1,200 r.p.m., which is the proper speed for a 7x3½ fly frame.

A 45 gear on the top cone would give a speed of about 130 r.p.m. on the front roll. A 48 gear on the jack shaft would give a spindle speed of about 1,280 r.p.m.

So, in the first case, before the change, we have $122 \times 3.53 = 430.66$. Spindle speed, $1,200 \div 430.66 = 2.78$ turns per inch.

After the change we have $130 \times 3.53 = 458.90$; spindle speed $1,280 \div 458.90 = 2.78$ turns per inch.

So, conditions are the same as regards the construction of the strand, but the spindle speed is too great.

I fail to see why the cone gear should be changed to run the frame. The top cone changes the excess speed, and the gear on the jack shaft changes the standard speed. Therefore, other conditions remain the same, and the position of the cone is not changed, so it would be wrong to change the cone gear.

WASH (R. I.)

Answers "Wash's" September Questions

EDITOR COTTON:

On page 69 of the September issue, "WASH" has asked some complicated questions which are very interesting and educational to any carder who will take the time to try to solve them. I can truly say that I have been benefited by them—especially No. 8 and No. 9, pertaining to the drafts on drawing frames, and also "the draft of less than 1.00 between the front roll and calender roll on drawing frames". I had never given these two problems very much consideration because I did not realize how important they were until "WASH" brought them to light, and this department should be grateful indeed to "WASH" for this and the many other helpful discussions that he has sponsored.

My answers to the questions he has given will be brief, but I will try to make them as clear as possible.

Question No. 1: *"In a picking machine, what harm can be done by increasing the draft without making other changes?"*

When changing the draft on a picker the blows per inch of the beater on the stock are the important factor that should be taken into consideration, and the production of course should be considered also.

Question No. 2: *"In setting a beater, what part of the beater box should be considered so that the stock will not be taken around the second time?"*

When setting a beater on a picker the boxes and beater blades should be set to the doffer, say ⅛-inch, then the feed rolls should be moved up and set to the beater.

Question No. 3: *"On a card we set the licker-in to the feed plate almost to touch. Does such a setting injure the stock, if so what about the action of the Kirschner beater on the finisher picker?"*

A very close setting of the feed plate to the licker-in on the card will not injure the stock providing the sheet of lap acted upon is not too thick, and the licker-in is in good condition, so as not to take the fibers around the second time; if these two conditions exist they will cause the feed plate to heat and the results will be a caked feed plate nose.

Question No. 4: *"Which is the best to extract the foreign matter from the field of action between the licker-in screen and licker-in; properly set mote knives with air admitted at the back of the card, or*

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poorly set mote knives with the back of the card air-tight?"

Poorly set mote knives with the back of the card air-tight.

Question No. 5: *"Do you prefer a heavy lap with slow feed or a light lap with faster feed? Why?"*

A light lap with a fast speed is preferable. Because the fibers are acted upon less by the licker-in teeth, which will make a stronger yarn but not quite so clean, and the beater at the finisher picker will have a better chance of removing the foreign matter from the stock on a light sheet of lap than it would from a heavy sheet of lap; of course this would depend somewhat on the finished product desired, as to strength and cleanliness.

Question No. 6: *"If you were going to reduce your carding, how would you do it? Would you reduce the speed of the doffer, the weight of the sliver, or the weight of the lap?"*

I would reduce the weight of my lap, but I would consider the draft and speeds also.

Question No. 7: *"When are humidifiers most helpful on cards?"*

Humidifiers are most helpful on cards in time of static.

Question No. 8: *"On drawing, which is the best draft? Why?"*

The best all-around draft on drawing frames, in my estimation, is 6.00. The drawing is the first process called upon to attenuate the many fibers in the cross-section of the bulky card sliver, and there is no other process better suited for this heavy work than the drawing itself. And furthermore, when you are drafting 6.00 on drawing frames, the draft between the front and second rolls seldom exceeds 3.00, and when we draft 5.00 on the slubber, the draft exceeds 4.00 between the front and second roll. Then isn't it better to have a draft of 6.00 on the drawing frames than a draft of 5.00 on the slubbers? In other words, a draft of 6.00 on the drawing frame is the medium of the extremes with reference to draft and the frictional contact of the bottom and top rolls.

Question No. 9: *"Why is a draft less than 1.00 required between the front drawing and calender rolls on drawing frames?"*

A draft of less than 1.00 between the front drawing and calender rolls is required where leather top rolls are being used on drawing frames because of the frictional contact not being positive between the leather roll and the bottom steel roll. This is always the case where a heavy finished drawing sliver is being run. The figured draft between the front drawing and calender rolls, where metallic rolls are in use, both top and bottom, is also less than 1.00, but this is mostly due to the sliver being crimped between the fluted rolls, which of course causes the metallic rolls to deliver more inches per revolution than the figured draft calls for.

Question No. 10: *"Are metallic rolls better than cork or leather on drawing frames?"*

Yes, with the exception of when a very light sliver is run.

Question No. 11: *"Name the causes of cut webs on drawing frames."*

Too much draft, imperfect gears, lost motion, slip-

ping gears, gears jumping teeth, fluted rolls filled with foreign matter, chatter, and many other causes, such as rolls being pressed too compactly at the card coiler, etc.

Question No. 12: *"What is the proper draft on a slubber? Why?"*

A short draft on the slubber is always desirable because of the great amount of work the rolls are called on to perform. With a 60-grain sliver up at the back of the slubber, with a draft of even 4.00, the rolls act upon nearly twice the amount of fibers in the cross section as do those on the intermediate; therefore a draft of 4.00 to 4.50 is always preferable.

Question No. 13: *"Which is the best compound for differential motion, the Houldsworth or the new so-called differential? In answering this question please consider the additional impetus caused from the cone."*

Would it be fair to the manufacturers to express one's thoughts on this subject? I think "WASH" has reference to the high speed of the gears within the periphery of the new motion, and several other changes that are different from the old compound, and, unless I miss my guess, "WASH" likes the Houldsworth compound the best.

Question No. 14: *"We have the bobbin-lead system, and so, if the bobbin leads, how can the spindle or flyer be an aid to the cone belt?"*

When a new doff is begun on a fly frame the bobbins of course are empty, and it does not take as much power to drive them as it does when they are full, and this is where the flyer is an aid to the cone belt, due to the changing position of the presser rod and centrifugal force, the flyer presser exerts more pressure on the empty bobbin at the beginning of a doff than it does on a full bobbin and the completion of a doff. Therefore, due to this change in frictional contact, the flyer presser is an aid to the cone belt.

Question No. 15: *"Why do you find a brake to stop the bottom cone from revolving in the opposite direction at doffing time, or when the bottom cone is raised? Why does the bottom cone revolve in the opposite direction when raised on all makes of fly frames in the bobbin lead system?"*

All fly frames should be equipped with a brake to prevent the bottom cone from revolving in the opposite direction when raised at doffing time, so as not to turn the full bobbins in the opposite direction, which will cause a disarrangement of the ends at the flyer presser. When the bottom cone is raised on a fly frame, the gears within the sunwheel receive their motion from the main shaft, and the pull from the main shaft on these gears is in the opposite direction from that in which the sun wheel rotates, which has a tendency to turn the sun wheel in the opposite direction from that in which it revolves, which of course would cause the bottom cone to rotate backwards.

Question No. 16: *"What causes tight spindles on fly frames?"*

Too much oil is one of the main causes of tight spindles on fly frames, especially in a dusty room. Then there are other causes, such as dirty bolsters, nicked spindles, roving getting wrapped around the spindle, spindle not being kept clean, dirty bobbins, etc.

Question No. 17: *"What is the best spindle speed*

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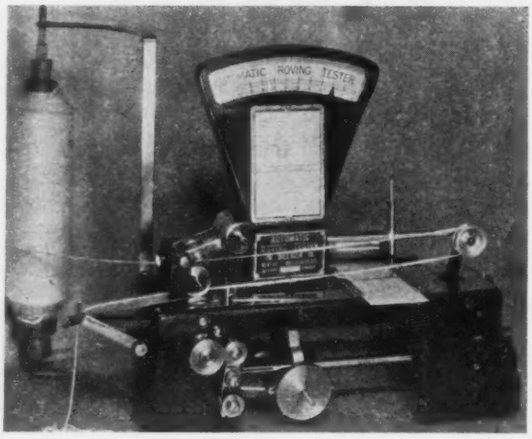

QUESTION: WHEN ARE YOU GOING TO BENEFIT FROM ITS ADVANTAGES AND BEGIN TO MAKE SAVINGS FROM ITS USE?

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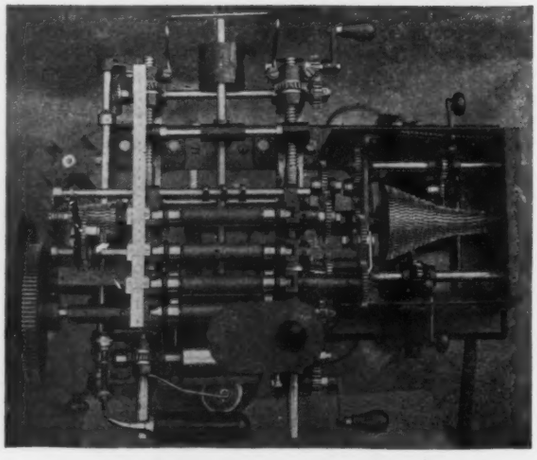

Shows in a few minutes the exact roll spacings for all drafting rollers, WHICH formerly took hours of valuable time experimenting on production machines, running tests and disrupting the mill operation.

THE BELGER COMPANY

Watertown, Mass.

on the slubbers, intermediate, fine and jack frames? Why?"

The speed of the spindle on fly frame depends on circumstances. The ratio of the speed of the spindle to the front roll is determined by the weight of the flyer, the grade of the stock being run, the hank roving and the size of the bobbin. I cannot give any definite number of r.p.m. of the spindle on fly frames other than the machine builder's rule, which is around 700 r.p.m. for slubbers, 900 r.p.m. for intermediates, 1200 r.p.m. for speeders and 1500 r.p.m. for jacks.

T. R. (N. C.)

Answers "Wash's" July Question About Ends on a Fly Frame

EDITOR COTTON:

In response to the question from "WASH" in the July issue of COTTON, I will say frankly that I have never seen the trouble mentioned occur on a fly frame. The question was: *"On a fly frame every little while the ends slacken and then pick up again, but in almost every case a few ends break down. There is slippage of gears in the train of gears from the bottom cone gear to the bobbin gears. The cones are tight on their shafts and do not slip. All keyed gears and keys are in perfect condition. When this condition happens the first thing the practical man will do is to put belt dressing on the cone belt or change the cone belt, which will not help the situation."*

Not being practical on this question I will be compelled to submit my solution from a theoretical standpoint. After reading "WASH'S" query it seems obvious to me that the cone belt is slipping intermittently at each revolution of a certain gear in the train of gears between the bottom cone and the bobbin gear. This is undoubtedly caused by some foreign matter or some hard substance that has accumulated in a few teeth of the gear, and at each revolution of this gear the bottom cone is caused to bounce due to the sudden jar when the teeth of the intermediate gears come into mesh where this hard substance has accumulated, and of course when the bottom cone bounces the cone belt loses its grip for a fraction of a second which will retard the speed of the bobbins, causing the ends to slacken, and at the same time as the cone belt slips on the bottom cone it will slide toward the small end of the bottom cone and regain its speed from that position, which will in turn speed the bobbins faster than they are really supposed to revolve. This will cause the ends to be jerked and some of them will break at the flyer finger.

An evil of this nature would be more noticeable when the bottom cone was not adjusted so as to have a full swing on the cone belt. Now, someone may say that a tight spindle in the bolster or the carriage binding at a certain point would cause this trouble, but I do not think so, although it would cause the cone belt to slip and the end would slacken, it would not cause the ends to be jerked down, because it would be more of a harder, steadier pull on the cone belt.

Another cause for this trouble would be the cone belt itself, say a cone belt that is too narrow for the belt guide, which wobbles back and forth for some

reason; it will be continually changing the speed of the bobbins, causing them to slacken and then pick up again.

I have a couple of questions I would like to ask for discussion by the readers of this department:

1. What causes the lap to lag behind the fluted rolls and the top calender rolls on a picker?

2. By what rule is the fulcrumed lever set when changing from one weight of lap to another on the apron?

T. R. (N. C.)

Should the Front Plate Be Set to the Cylinder or to the Flats?

EDITOR COTTON:

I do not wish to cause your readers to think that I am trying to consume too much of the space in the "HOW OTHER MEN MANAGE" department, but here is something on which I must express my experience and practice and opinion. Some months ago you published in this department a letter from "CONTRIBUTOR NO. 6181" with reference to card settings on coarse work. He was commenting on two lists of card settings that you had published, as given by "CONTRIBUTOR NO. 4967" and "CONTRIBUTOR NO. 5044". He made one statement about setting the front plate which I cannot let pass without some discussion.

Before this, however, I might say that as to the card settings which he criticizes, I cannot see anything particularly wrong with those of "CONTRIBUTOR NO. 4967", except perhaps I would set the back plate to the cylinder to a 29 gauge at the bottom edge and a gauge made of a cotton bale tie at the top edge—instead of 34 at the bottom and 17 at the top as he does; I would set all of the flats to a 10-gauge; the back screen nose to a 29 gauge; the doffer to a 7 gauge; and the bottom edge of the front plate to a 29 gauge for a starting point, changing it to get the correct strips. These same comments will apply to the settings given by "CONTRIBUTOR NO. 5044" except that I think that a 17 gauge on any of the card screens is too close.

But—the thing which administered the knock-out blow to me was the statement from "CONTRIBUTOR NO. 6181" that, "I have had a good many years of experience on all classes of work, having spent the greater part of my life around cards, but I never knew when they started setting the front plate to the cylinder. The front plate, or percentage plate, is set to the flats, and not to the cylinder."

Mr. Editor, I too have spent quite some time with cards and my experience has carried me—or I might have said has been secured—in the two Carolinas, Virginia and Georgia, and I never knew that they had ever set them any other way except to the cylinder. I am indebted to your contributor for this information, but I would like for him to make it just a little bit more convincing, especially in the face of so many pieces of conflicting testimony.

He said that his settings applied to Saco-Lowell cards and could be applied to other makes, with but little trouble. Allow me to inform him that I have

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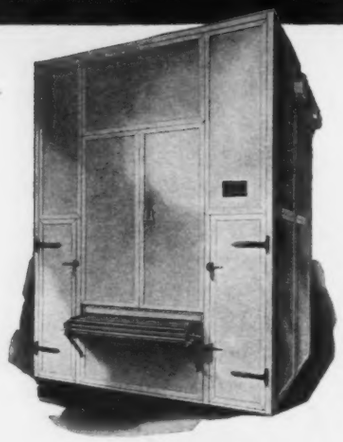

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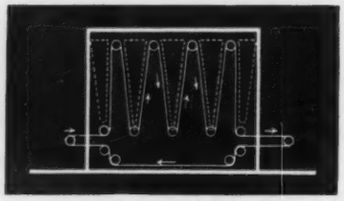

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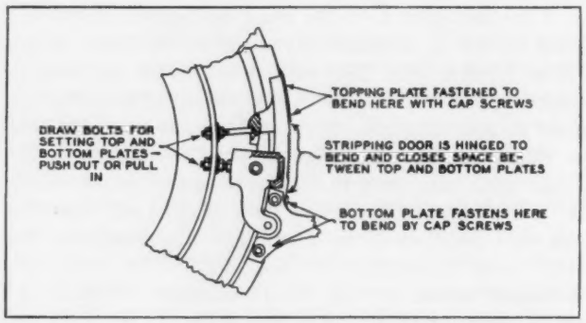
NRA

70 40-inch Saco-Lowell cards, 1917, and 112 Saco-Pettee 45-inch cards of the 1905 variety and I am unable to figure it out, especially after studying the card closely, so I have made a sketch and am sending it in, hoping that you will print it and that we all might study it together. After it is all over, we will perhaps all be better informed.

Let me call attention to page 21 of Saco-Lowell's catalog of Cards and Lap Winders, as built at Newton Upper Falls, Mass. On this page the settings for cards are listed and the last two are those which I have in mind—the next to the last item is: "Front knife plate, lower edge from cylinder, 29/1000." The last item is —"Front knife plate, top edge or stripping plate, 34/1000. This plate is adjustable as previously described, to regulate to some extent the weight of strippings taken out by the flats. The closer this plate is set to the cylinder, the lighter the stripping, and *vice versa*, to a limited degree."


TOPPING PLATE FASTENED TO BEND HERE WITH CAP SCREWS
DRAW BOLTS FOR SETTING TOP AND BOTTOM PLATES—PUSH OUT OR PULL IN
STRIPPING DOOR IS HINGED TO BEND AND CLOSES SPACE BETWEEN TOP AND BOTTOM PLATES
BOTTOM PLATE FASTENS HERE TO BEND BY CAP SCREWS

Please notice that these people say "The closer this plate is set to the *cylinder*".

A test report by the Cotton Research Company, Inc., Boston, Mass., No. 62, February 1922, says in part, "Top front plate to cylinder, 29/1000."

The first prize winner in "Fine Points of Carding", printed by Clark Publishing Co., said, "The front knife plate governs the strips to a certain extent and will have to be set to suit the strips you want to take out". D. A. Tompkins, in the Third Edition of "Cotton Mill Calculations", repeats Saco-Lowell's statement word for word.

I would like to quote exactly the method "CONTRIBUTOR No. 6181" gives for setting the front plate to the flat. He says:

"The place to set the plate is to turn a flat until it is about in the center of the top plate, and the plate set up or down according to the amount of waste required. If the plate is set closer to the flat, he will get more waste, and if it is set farther away from the flat, he will get less waste. I have always found that a 10/1000 gauge is just about what I wanted between the percentage plate and the flats.

"We all know that with constant grinding the clothing on the cylinder will be ground down and leave the percentage or front plate away from the cylinder, but this will not do any harm other than to roll the cotton and cause the web to look flaky. This could be overcome by setting the front plate closer to the cylinder, but the proper place to set the front plate is to the flats. This is a difficult setting, and there is not much room at this point for a gauge, and care must be taken that the gauge is not inserted too far in, as it will touch the cylinder. Just use the point of an ordinary card gauge between the bevel on the top of the front plate and the center of the flat."

Now, referring to my sketch, we see that the bend supporting the top plate, the stripper door and the

bottom plate, is set by means of a draw bolt near its top end, and another near its bottom end. These two bolts can only be moved "in" or "out", so I fail to see how you could raise or lower the top plate. (This sketch is of a Saco-Lowell card).

No one whose opinion has been openly accepted calls the top plate a percentage plate. (I wonder if "CONTRIBUTOR NO. 6181" is a comber "fiend" and has his wires crossed). And I know of no machinery builder who calls it a percentage plate—admitting in advance that I am not personally acquainted with all of them.

"CONTRIBUTOR NO. 6181" said set the plate with a flat stopped over the top edge of the plate, the flat being half way over. Now the flat surface is flat, so pray tell me how it will be possible to keep the flats front and back edge (heel and toe) to a 10 gauge as it passes over the plate. Before answering that question, I suggest that he try it for himself, and he will find that the heel and toe will be nearer than the center as the flat passes over. That being true, what is the virtue in his setting? Why not set to any part of the flat fillet's surface; again, if the surface of the flat is not at the same distance from the plate as the flat revolves or passes over the plate, where is the virtue of any setting there?

CONTRIBUTOR NO. 6123.

Another Weaver Gives a Remedy for Button-Hole Selvages

EDITOR COTTON:

In a recent issue "CONTRIBUTOR NO. 6163", in submitting a question as to the cause of buttonholes, said that one man had told him that it was tender filling and that another man had said that friction is the only thing that will cause buttonholes.

I will say that I cannot agree with either of his advisers. I have seen a loom fixed for making buttonhole selvage while using filling from the same bobbin; if tender filling causes the loom to make a button selvage it would have to be made as long as the filling lasted from that bobbin. Of course it is a good idea to keep the bobbin straight in the shuttle but that alone will not remedy one loom out of a hundred.

What, in my opinion, causes buttonhole selvage is that the yarn closes on the filling before the shuttle stops in the box. The filling has the selvage pulled in, when the reed comes forward to beat the filling up, the reed spreads the yarn back out and then the filling is pulled in two.

To prevent a loom from making a buttonhole selvage I would suggest setting the pick motion to pick from top center and having the stroke long enough. Set the reed 2¼ inches from the fell of the cloth, have the harness cam set so that the shuttle will pass over the front shed, picking from the right-hand end. Put the jack strap loop in the first and second notches on the treadle, have all slack out of the harness, and have the warp tight enough to give a good face to the cloth. We have constructions as light as 18x20, 44x40, 68x72, and 80x80.

J. W. M. (S. C.)

The Story of Cotton

This is the fifth of a series of advertisements telling the story of cotton from its earliest cultivation in India and Peru to present times.

V. THE COTTON GIN

Nearly all the mechanical inventions which contributed to the widespread use of cotton came from hands which had known the feel of the fluffy commodity since childhood. The cotton gin was a notable exception: it was invented by a New England Yankee who in all likelihood had never seen raw cotton until he was a man full grown. And even then, it was only a happy accident which directed his inventive genius toward the assistance of the cotton planters of the South.

His name, as every schoolboy knows, was Eli Whitney. He had graduated from Yale and traveled South to accept a teaching position in a Georgia school. Through some misunderstanding the position was already filled when he reached Savannah. Luckily, however, young Whitney had made a powerful friend on the voyage down in the person of Mrs. Nathaniel Greene, widow of the Revolutionary general. This gracious lady invited the disappointed schoolmaster to stay a while with her. Penniless, he accepted the invitation with alacrity, and on her plantation, Mulberry Grove, he made a first hand acquaintance with the problems of the Southern agriculturist.

The chief of these was cotton. The demand for cotton was heavy; the English and New England mills would take all that the American planters could supply, but the amount of this was small. The country was suited to cotton growing, and the planters had no objection to planting the crop; but one thing held them in check—the cotton seeds. They clung so tenaciously to the fibres of the American upland staple that they could be separated only by hand, a process forbiddingly tedious and expensive. A fortune, the planters told Whitney, awaited the man who devised some method of mechanical separation.

Whitney closeted himself with the problem. And when he emerged from his workshop, he had formulated the principle of the cotton gin, which is still in use today. Its operation is well known: spikes (or saws) operating through slotted apertures pull the fibres from the seeds; and brushes remove the fibres from the spikes or saws. Hodgen Holmes, a Georgian, improved Whitney's gin by the invention of the well-known gin saws.

The legislature of South Carolina thought the cotton gin to be of such value that it appropriated $50,000 for the purchase of Whitney's patent rights in that state; North Carolina paid him $30,000, which was raised by a special tax on gin saws, and Tennessee $10,000—a total of $90,000 to the inventor. And that is about all that he realized, for the machine was so fundamentally necessary that Whitney was unable to supply the demand; blacksmiths copied it for plantation owners, and this practice became so widespread that it was impossible for the patentee to maintain his rights.

Whitney returned to New England, but his cotton gin stayed in the South. The importance of its effect on that section of the country cannot be overestimated. The cotton gin changed the entire direction of the South; it found the cotton plant a lowly vassal in the realm of southern agriculture and raised it to be king.

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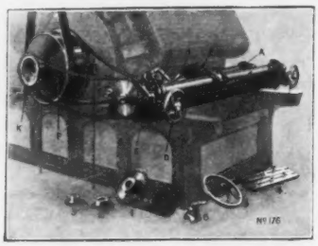

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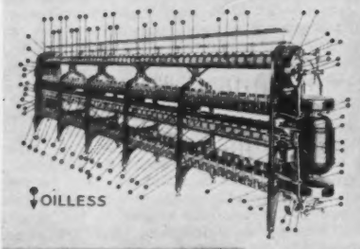

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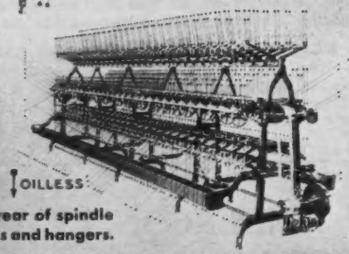

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6818

More Comments on Card Settings

EDITOR COTTON:

I should like to continue the discussion which was brought up some months ago by "CONTRIBUTOR No. 6172" with reference to card setting, on 1 1/16-inch Low Middling cotton, making a 55-grain sliver. This man said that he sets all of his top flats to a 10/1000-gauge, except the front stand, which he sets to a 17/1000. I am no critic, but I have several reasons why I would not set the front stand to a 17/1000-inch gauge, when the other stands are set to a 10/1000. He gives as his reason for doing this, the fact that as the flats move toward the front they become so heavily loaded that they do not do any carding; also that they cause the stock to roll and pass on into the web in that condition.

First, does he not know that he is causing the flexible bend, on which the flats ride, to buckle? I would speed up the flats if they ran so slow as to allow them to fill up before they get to the front. Personally, I never saw or heard of flats loading up so they would not card, if the cylinder was properly stripped and not allowed to fill up. I would suggest seeing that the cards are sharp—making a personal inspection and not taking anybody's word for it.

If a lap of say 12 to 14 ounces is run, I would set the feed plate to a 10/1000; to set any closer might break the fibers. I would set the licker-in to a 7/1000, and the licker-in screen to a 10/1000, because the licker-in will deliver the fibers to the cylinder more evenly and uniformly with these settings. Fibers that are allowed to pass around the licker-in a second time will cause a cloudy web.

I suggest setting the back plate to a 17/1000 at the bottom, and a 22/1000 at the top. This, due in part to centrifugal force, will cause the flats to pick up more trash such as leaf and other foreign matter. The cylinder screen settings which he gives, 22/1000 at the back, 34/1000 at the middle, and 5/16-inch at the front, seem to be all right. I would set the mote knives, top and bottom, to 7/1000, and, as nearly as possible, divide the difference between the feed plate and the licker-in screen with the mote knives. This will prevent too much white cotton from falling out with the motes.

Getting back to those top flats, I do not think that 9/1000 is too close. I set the flats to a 7/1000, but to do this, the flats must be in an A-1 condition and the floor must be good and steady. I think that a man is kidding himself if he sets flats to a 17/1000 gauge.

So far as the stripping plate is concerned, I set this point to take out the right amount of strips. I think a 22/1000 at top, and a 34/1000 at bottom is a good setting for the stripping plate. We also have a plate between the doffer and the cylinder; some people think this is not important, but it is, if an even, smooth web is desired. Set this plate to about a 22/1000.

I set the flat comb close enough to clean the flats well; I would say a 22/1000, at which I would also set the doffer comb.

Cards, of course, should be level and the clothing tight. If there is any loose clothing it should be re-drawn. If it is so old that it will not stand re-drawing, then new clothing should be put on; a card can't

do good work if the clothing is in bad condition.

Have all settings backing away when the card is left; I mean pull the setting point up too close and then back off to the gauge; this will save a lot of faced clothing and bad work.

The main bearings should be greased with cup grease, and the cards oiled regularly. I realize that different conditions call for different settings, but I think those I have outlined will give very good results on 1⅛ or 1 1/16-inch cotton. I would be pleased to hear from anyone who does not agree with me.

CONTRIBUTOR No. 6289.

EDITOR COTTON:

After reading the article from "CONTRIBUTOR No. 6236" on page 69 of the August issue of COTTON, advising another contributor on how his cards should be set on 1 1/16-inch Low Middling cotton with a 55-grain sliver, I thought I might offer a few suggestions along this line.

I think that the recommended setting of 7/1000-inch for the feed plate; 7/1000 for the licker-in; back plate to cylinder, top, 15/1000; back screen, next to licker-in, to cylinder, 34/1000; middle of screen to cylinder, 34/1000; and front end of screen to the thickness of two whole card gauges; are all right. But, when he mentions the setting of mote knives, flats, and doffer, I cannot agree.

He stated that the mote knives should be set just as close to the licker-in as possible without rubbing; that you can't set a mote knife too close to the licker-in unless it touches. He sets the doffer to the cylinder, if the cards are on the ground floor, 5/1000, if the cylinder and doffer fillet are in good shape and tight.

The idea of setting mote knives as close as possible to the licker-in, without using a gauge, and also stating that you can't set the knives too close to the licker-in unless they touch, shows that he is very inconsiderate. I will say that there is very little to gain by such a close setting, as compared to the many chances there are of damaging the licker-in, mote knives, as well as the brackets. My idea of a close setting for mote knives—at the same time not damaging any of the parts mentioned and also obtaining good results in carding—is to set them both to a 7/1000-gauge, and then you must make sure that the licker-in surface is perfectly level and the knives must be straight and have a smooth edge and fit tight in the brackets. Setting them any closer would not be advisable.

"CONTRIBUTOR No. 6236" also advises progressive setting for the flats; that is, setting the flats closer to the cylinder at the front of the cards and at the back. We look with disfavor upon such a setting, because we believe that flats should be set as close as possible at all points or stands, so that there is very little space between the wire of the flat and the wire on the cylinder. Too much space at these points is the cause of fibers rolling up and making neps, which is just what we are trying to eliminate in the web.

The construction of the flats, meaning the heel and toe formation of each individual flat, which "CONTRIBUTOR No. 6236" describes very well in August COTTON, should take care of any progressive carding that should be done between the flats and the cylinder.

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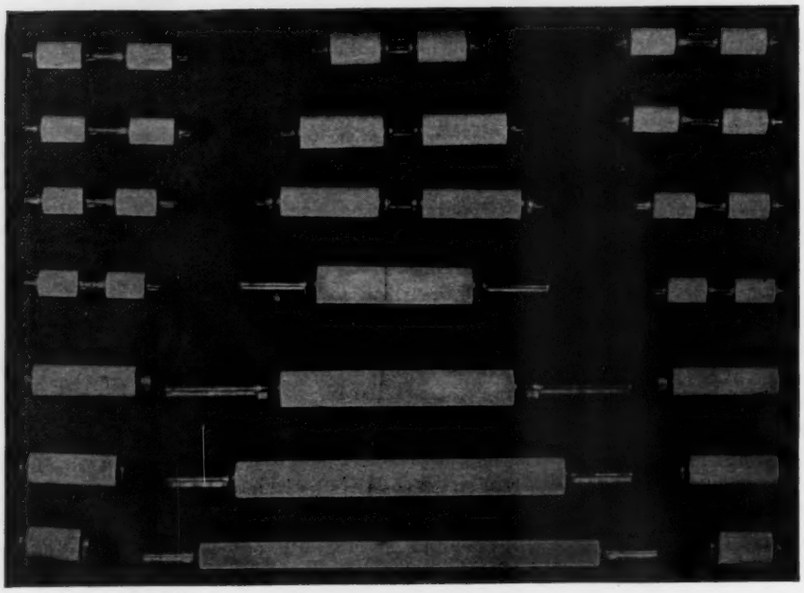

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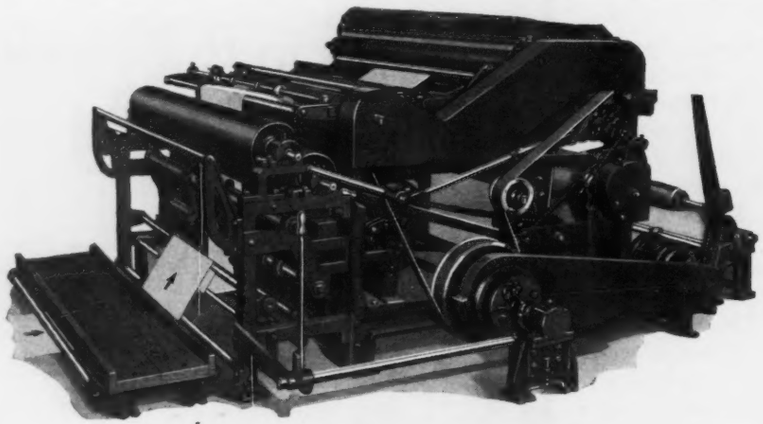

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If the clothing on the cylinder and the wire on the flats are in good shape, the flats should be set to a 7/1000-gauge at all stands, with no trouble at all.

"CONTRIBUTOR No. 6236" says to set the doffer to a 5/1000-gauge. I would never allow the doffer to be set to the cylinder closer than a 7/1000-gauge. Any closer setting at this point would only undo the good work that the flats have been doing, allowing the cylinder to deposit short fibers, impurities and neps upon the doffer, these getting into the web, that otherwise should stay embedded in the cylinder wire to be stripped out at some time later.

These settings, plus good sharp points on the licker-in, cylinder, flats and doffer, will produce a good web.

CONTRIBUTOR No. 6287.

Card Settings for Coarse Work

EDITOR COTTON:

Some months ago I saw in COTTON a letter from "CONTRIBUTOR No. 6181", who was disagreeing with "CONTRIBUTOR No. 5044" and "CONTRIBUTOR No. 4967" with reference to card settings on coarse work. He said, in criticizing "CONTRIBUTOR No. 5044", who had suggested setting the front plate to the cylinder to get the desired amount of strips, that "the front plate, or percentage plate, is set to the flats, and not to the cylinder." I think he is dead wrong here and there are good card grinders and overseers who will bear me out in this. Personally I never heard of setting the front plate to the flats. Get out the book the machine builders send with the machinery and see what it says about where to set the top plate.

As for the licker-in screen, I set mine to the licker-in and not the cylinder. I agree with "CONTRIBUTOR No. 5044", who says he does not believe in graduated settings for flats. I think graduated settings of flats are a waste of time, and I think a man is better off without them.

I do not think that a man would increase his breaking strength by setting the doffer comb to a 34-gauge, either. "CONTRIBUTOR No. 6181" said that this would give the short fibers and trash an opportunity to drop out and increase the breaking strength.

I think this man is wrong again on the setting for the back plate. He sets it 29 at the top and 34 at the bottom. I would set the bottom closer than the top, and a little closer to the cylinder. I would set my mote knives closer to the cylinder.

CONTRIBUTOR No. 6278.

Did you ever notice: A particularly good overseer or superintendent always seems to have a particularly good job.

It was not so very many years back when an overseer got the job because he was a good grinder, a good fixer, or a good mechanic, but the time when experience alone will get a man a job is past. No one man's experience, by itself, can keep pace with the experience of all the overseers and superintendents. This points out the wisdom of profiting by the other fellow's experience as set down in COTTON *and other magazines.*—OLD-TIMER.

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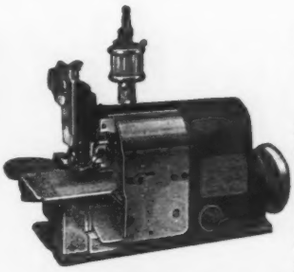

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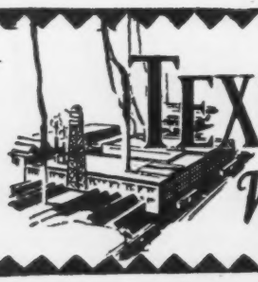


TEXTILE BOOKLETS *Worth Writing For!*

The booklets or catalogs briefly mentioned below may be obtained by any readers of COTTON who will write to the Company issuing them or to COTTON, Grant Bldg., Atlanta, Ga.

2. Pepperell Equipment—10 page illustrated booklet showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments, installation and product photographs. Issued by Universal Winding Company, Boston, Mass.

4. New Methods of Opening Cotton, also "Brown" Automatic Mixing and Cleaning Distributor — Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

10. Leathers, Textile—Booklet No. 101, 48 pages. Illustrated. Showing "Bondaron" Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. Whitinsville Rings—16 page illustrated booklet, describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co. Whitinsville Mass.

15. The Powers System of Thermostatic Control — "Slasher Room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co. 2739 Greenview Ave., Chicago, Ill.

21. Warp Sizing and Composition of Cotton—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Wooley Co., 748 Rice St., Atlanta, Ga.

25. "Lupogum" and "Monopole Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

28. Akron Belting—Practical Rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York and New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading Pa. (This company also issues parts catalog for Reading full fashioned machine with general information on subject of full fashioned knitting.)

55. Interpretation of Analysis for the Layman—An eight page booklet explaining what the various terms used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

58. Trichlorethylene, Its Properties and Uses—a forty page booklet showing the properties and uses of Tri, with many valuable suggestions regarding its applications in drycleaning, spotting out, scouring textiles, etc. R. & H. Chemicals Dept., E. I. duPont de Nemours & Co., Wilmington, Del.

62. Rubber Products for the Textile Industry—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan Inc., Passaic, N. J.

63. S-W Paint Standardization Plan—valuable booklet telling how protective coatings can effect economies in plant operation and maintenance, describing how each surface is finished to best meet its specific needs, giving ideal lighting and sanitary conditions and economies in increased production. Sherwin-Williams Co., 601 Canal Rd., Cleveland, Ohio.

64. Efficiency and Performance of SKF Roller Bearing Spindles — A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., 40 East 34th St., New York, N. Y.

65. Why Cooper Hewitt Light is Better Than Daylight — A 16 page booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Elec. Vapor Lamp Co., Hoboken, N. J.

66. Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 176—describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

70. Fafnir Ball Bearings for One-Process Pickers—outlining the advantages of ball bearings in guaranteeing smooth, accurate motion particularly on eveners, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company, New Britain, Conn.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in textile fabrics. The Merrow Machine Co., Hartford, Conn.

75. The Facts About Armstrong's Seamless Cork Cots — A helpful book containing plain facts, cost studies based on actual mill records, expert analysis, complete details on the advantages of Armstrong's Seamless Cork Cots. Armstrong Cork & Insulation Co., 923 Arch Street. Lancaster, Pa.

77. Bulletin S 200—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages, and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

78. Booklet L 1289 A—Loom Motors and Control—giving details of the low installation, operating and maintenance cost of Westinghouse Loom Motors. Westinghouse Electric & Manufacturing Company, Room 2 N, East Pittsburgh, Pa.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

90. Atwood Booklet—Describing Atwood Winders, twisters, wire swifts, and various types of feed rolls—useful to throwsters interested in learning the principal features of various Atwood machines. Atwood Machine Co., Stonington, Conn.

91. Illustrated Buyers' Guide and Catalogue—Of interest to every dyehouse executive, not only telling what dyehouse equipment is available in Monel Metal but also where to get it. The International Nickel Co., Inc., 67 Wall St., New York, N. Y.

93. Metso — Describing this industrial cleanser which has wide use in industrial cleaning of metals, floors, etc., and is used in kier boiling, silk and rayon degumming. Philadelphia Quartz Co., 121 S. Third St., Philadelphia, Pa.

94. New Development by Onyx—Eight-page booklet describing and giving uses of new developments in sulphonated aliphatic compounds . . . called Aliphatic Ester Sulphate and Glyceryl Sulphates. Onyx Oil & Chemical Co., 15 Exchange place, Jersey City, N. J.

97. Suggestions For The Modern Silk and Rayon Throwster — describing the various uses for Laurel Brand Products and giving valuable suggestions in silk-soaking, degumming, dyeing, sizing and finishing. Laurel Soap Mfg. Co., Inc., Tioga, Thompson & Almond Sts., Philadelphia, Pa.

100. Bulletin 174, Controlling, Recording, Indicating Instruments for Temperatures, Pressures, Humidity, Flow. 40 page booklet illustrating with installation photographs the uses and advantages of instruments built to meet definite requirements. Foxboro Co., Foxboro, Mass.

106. Cotton System Warp Sizing on Multiple Cylinder Machines—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk — Charles B. Johnson, Paterson, N. J.

107. Complete Information on Alemite Lubrication. Showing how costs can be reduced through proper lubrication. Alemite Corp., 1828 Diversey Blvd., Chicago, Ill.

108. Thickness Materials for Textile Printing—discussing the more important materials and methods employed in the preparation of color thickenings so that it may be properly and economically transferred to the cloth in textile printing. Stein, Hall & Co., Inc., 285 Madison Ave., New York City, N. Y.

110. 3-In-One for Industrial Uses—showing the many industrial uses and advantages of this oil. Three-In-One Oil Co., 70 Varick St., New York, N. Y.

112. Belger Long Draft — describing "Elastix" Rolls with which drafts from 16 to 17 on carded and 20 to 22 on combed stock can be achieved without changing the spinning frame. The Belger Co., 36 Pleasant St., Watertown, Mass.

114. Denman Parts for All Makes of Looms—showing drawings and dimensions of Denman pickers, hold-ups, bumpers, and bunters made of fabric and vulcanized rubber. Denman Tire & Rubber Co., Warren, Ohio.

115. How to Cut Cloth Room Costs with Automatic Picking Machines and Improved Inspecting Machines—Hermas Machine Company, Warburton Ave., Hawthorne, N. J.

116. Arcy—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch, and its many advantages. Drake Corporation, Norfolk, Va.

117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

118. Cotton Picking, Opening and Cleaning Machinery, Cards, Combers, Roving, Drawing, Spinning, Twisting, Rings, Worsted Machinery and Woolen Machinery — Pamphlets are issued on each of the individual machines. In writing indicate special pamphlets desired. Whitin Machine Works, Whitinsville, Mass.

119. The World's Finest Sewing Machines—a condensed catalog giving details of the various Willcox & Gibbs sewing machines. Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York, N. Y.

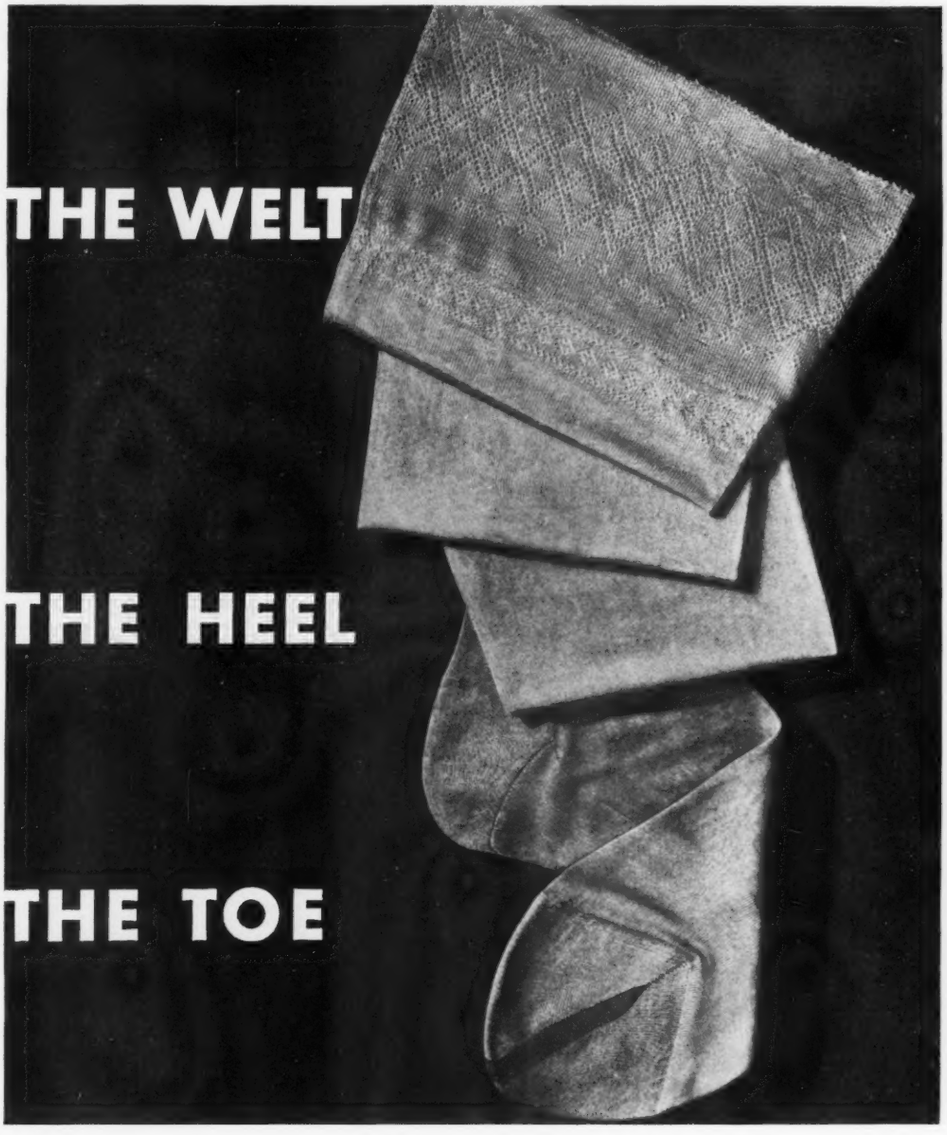
120. Goodyear Mechanical Rubber Goods Catalog—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

121. Engineered Packages for the Textile, Dry-Goods and Apparel Industries—Showing the savings to be made through the use of properly engineered packages of corrugated fibre in the shipping of yarn, woven and knitted products. Hinde & Dauch Paper Co., Sandusky, Ohio.

122. Water Filters and Filtration Equipment—Containing complete description of the chemical processes involved in the coagulation and precipitation of foreign matter, the removal of iron, oil, manganese from water and the production of clean water suitable for the textile industry, together with tables of specifications for standard filters, and information showing the extra profits to be made by the mill through reduction in costs and process difficulties, through removal of undesirable impurities in water. Permutit Company, 330 W. 42nd Street, New York, N. Y.

123. An Outline of History for Anti-Friction Bearings—a treatise outlining the development of anti-friction bearings from their earliest appearance in history to their present important position in Industry. Fafnir Bearing Company, New Britain, Conn.

KNITTING SECTION



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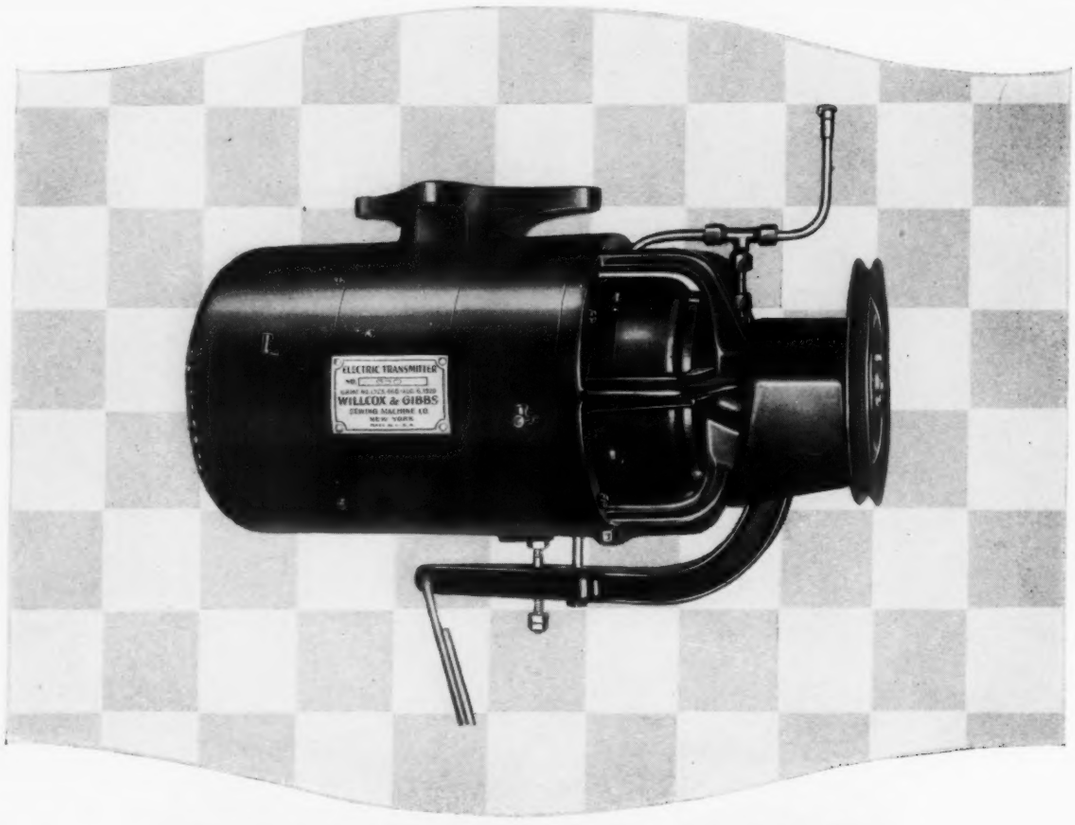

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A Discussion of the New Southern Association of Knitting Mills

TAKING a long range view of the need for an organization of manufacturers of hosiery in the southern field as a distinctive body, it is to be assumed from the comments of some mill heads in the Pennsylvania and adjacent fields that the new member of the family of trade associations is expected to occupy an important place at the table in future parleys having to do with federal legislation affecting the industry.

Southern manufacturers for some time—almost from the establishing of full-fashioned plants in their field—have had to meet some unfair criticism from competitors in the older communities in the art of producing flat knitted hosiery. Through their organization, it is pointed out by a few manufacturers not over 50 per cent friendly to its origin, they are in a stronger position for fighting battles that are peculiarly their own.

The allegation was recently made by a distributor of hosiery representing Middle State mills exclusively that, by reason of the wage differential designated in the hosiery code, southern manufacturers had a cost advantage of 50 cents a dozen on gauges 42 to 45 and that this was in large part an explanation of low prices quoted in New York and Philadelphia. This proposal was discussed with an old-time mill executive in Philadelphia, who was inclined to pooh-pooh it. "The low prices for moderate price hosiery were made in Pennsylvania mills—some in Philadelphia, perhaps, but much more in rural communities," this manufacturer stated. "From my observation, southern mills, if they have a cost advantage, are applying it to profits and not to competition on a price basis."

So little circular knit hosiery, aside from children's and infants' lines, is produced in northern mills—excepting wool numbers for which New England is a most important section—that the formation of a distinctively southern association was the logical thing, say some manufacturers who apparently are only lukewarm on the subject. Four years ago, in January, 1930, there were2,068 productive full-fashioned machines in 60 mills scattered among eight southern states, according to the Charlotte (N. C.) Industrial Bureau at that time. This was an increase of 613 machines from 1929. The southern productive capacity in 1930, accepting the foregoing figures, was about equal to 13 per cent of the total installation reported from a neutral source in June, 1932, when, however, the same authority credited the southern belt with 16.5 per cent of the total installation for the United States, and 18.4 per cent of the aggregate production.

Figures would seem to clinch the argument for a distinctively southern organization of the seamless and full-fashioned hosiery industry, particularly as the foregoing percentages are greater than at the time they were computed, for there is reported relatively more new installation, in both divisions, in the south than in most other fields. Besides, there are economic phases of the 1933-34 industrial situation with which certain sections prefer to deal as sectional groups, and the South is necessarily the more important of these.

According to Pennsylvania outspoken opponents of the continuation of the three-day week who profess to have canvassed the full-fashioned industry nationally, there is a large preponderance of southern sentiment in opposition. It is in matters of this kind that manufacturers in the South, as perhaps in other important industrial communities, may prefer to be heard sectionally, it is admitted by some of their northern friendly rivals, who point to southern progress as representing the spirit leading to southern organization. But a number of manufacturers, in a spirit of loyalty to the national organization of hosiery manufacturers, do not like it.

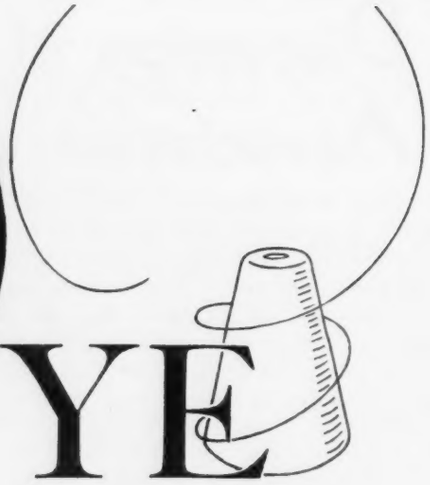
In the case of the recent protracted strike in the full-fashioned hosiery industry in Reading, Pa., and round about, it is maintained by manufacturers in that area that they fought their battles through a hastily formed organization of their own, intended perhaps to be discontinued when and if its usefulness ceases. It is contended that industry is better prepared for meeting emergencies confined more especially to given large communities through permanent organization.

SOME INTERESTS see in the decision of the National Labor Board's ruling on December 15, awarding the organized workers a five per cent wage increase, possibilities for a long drawn-out controversy. After the unionized manufacturers, constituting the Full Fashioned Hosiery Manufacturers of America, in July last increased wages 25 per cent, a demand for a 20 per cent additional increase was made, for enforcing which a strike was called against the unionized mills, effective September 1. In the meantime representatives of both sides submitted the matter to the Labor Board, which obtained agreement that both would abide by the Board's decision in the event they themselves failed to compose their differences within 22 days. The Board withheld its decision until one day after decreeing a 24-hour week in the hosiery industry. The effect of the five per cent increase, it is pointed out, would be to increase operating cost beyond the estimated increase in overhead.

* * *

THE CITY OF Reading, said to have been probably the hardest hit hosiery manufacturing city in the United States during the depression, is estimated by the Chamber of Commerce to have lost $2,000,000 in payrolls by reason of the hosiery strike. When two of the city's banks were put on a restricted basis in March, $28,000,000 in deposits were tied up completely—one of the banks probably will have reopened this month. Building construction in 10 months of 1933 dropped to $81,000, from $2,295,000 in 1931, the Chamber of Commerce reports. But recently there was a gain of 3000 persons employed in gainful occupations, comparing with a year ago, and the city's big retail stores were able to show a slight increase in sales in December

They DYE EVENLY!



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New York *500 Fifth Ave.*
Amsterdam, N. Y.
Reading, Pa. *418 Franklin St.*
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MILLS: *Chester, Pa., Belmont, N. C.*

Comment on Restriction of Knitting Hours and Its Effect on Mills

IN LESS than five hours after Philadelphia manufacturers of full-fashioned hosiery received on Friday, December 15, notice of the decree of General Hugh S. Johnson by which the government on Monday, December 18, entered into control of the production of hosiery for a period of five weeks, manufacturers were lining up in a fight for a modification of the ruling. A meeting, reported having been attended by between 30 and 35 manufacturers, was held a few hours later and formulated a telegram of protest, which all present signed, and forwarded to General Johnson. All of the next day the number of opponents was recruited up to around 50, it was stated by leaders in the movement, and it was openly predicted "there will be fireworks before this thing is settled finally." Radical utterances included a charge that the 24-hour shift was ordained "for the benefit of the J. P. Morgans of the hosiery industry."

Will the Smaller Mills Suffer More?

The ruling by which the NRA administrative authority approved and made effective the recommendation of the Code Authority of the National Association of Hosiery Manufacturers, appeared to be eminently satisfactory to the rank and file of the owners of the larger and moderate size plants. "The best thing that ever happened for the good of the industry," said an executive speaking for one of the more powerful corporations. But it soon became evident that a strong opposition had developed among operators of small to medium size mills which had been producing to capacity and selling their output. This was the most severely shocked group, seemingly, in the entire full-fashioned division. Particularly loud in their complaints were those manufacturers who previously had been restricted to 35-hour shifts in their footing departments, since the 40 per cent curtailment was ordered for all operations. The limitation to 24 hours is especially resented by the opponents originally to any change, it being assumed by them that curtailment would set productivity back not more than 25 per cent, to 30-hour shifts.

Conspicuous for activity in behalf of the protestants were Samuel Tait, president of Vogue Silk Hosiery Co., Philadelphia, and Reinhard Huettig, an old-time manufacturer for years in New Jersey, now president of the Montgomery Hosiery Co., Inc., at Montgomeryville, Pa., some few miles out of Philadelphia. Both favored adjusting production to inventories. Huettig favored a code provision prohibiting any manufacturer having in stock at any time more than four months' production. Tait in an open letter deplored diminished earnings for employees and a probability of some being left unemployed.

The organized hosiery workers favored a 30-hour week at the time the 40-hour limitation was adopted. The workers get a deeper cut than they had asked for and the smaller mill group less production than they had banked on in the event of the NRA decision being against them.

Manufacturers operating small plants feel they have been sacrificed "for the good of the hosiery industry as a whole," and they have the sympathy of a few whose mills may be rated midway between small and large. This group is hopeful the curtailment will not be continued beyond the five weeks period, but represent that no manufacturer can intelligently plan his spring campaign so long as the possibility of an additional three weeks or more of short time hangs over them. For the present, most mills in Philadelphia and in the Reading area and intermediate sectors, will operate Wednesdays, Thursdays and Fridays, some, however, distributing the time as may better suit their convenience, but doing no work Saturdays.

Roughly estimating the quantities of hosiery to be kept off the market until January 1 by reason of the three-day limitation on production, some mill executives figured it would amount to 35 per cent of recent output. This should be sufficient to reduce surplus stocks in mills to a point where the industry might make a fresh start with decks cleared for spring business.

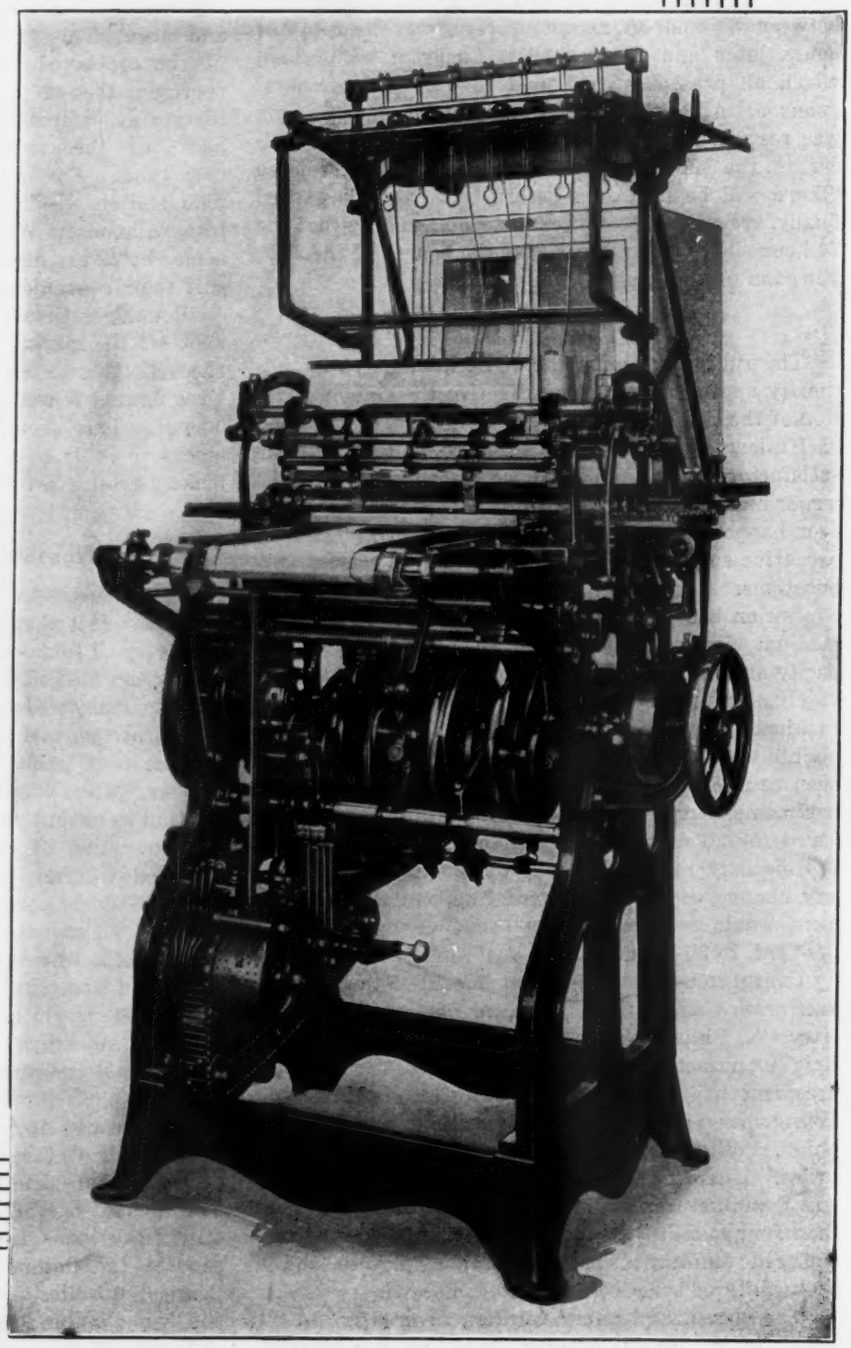
The Probable Effects of the Curtailment

In any estimate of the full effect of the curtailment, the fact that only a comparatively few mills—mostly small to moderate size plants—were recently in production 80 hours a week, must not be overlooked. Fully as many more were employing only a single shift of operatives, and a number of mills were idle during the four weeks to around the beginning of December. Thus it might appear that 25 per cent reduction in output would be a closer estimate than 35.

Production of hosiery, all kinds, in October as reported to the Department of Commerce totaled 4,922,420 dozens, representing a decline of approximately 20.3 per cent from October, 1932—and still the markets were glutted with virtually all general classes in December, as indicated in some of the pre-Christmas promotion sales at 89 cents, and less, a pair for stockings selling regularly in leading department stores and women shops for $1.35 to $1.65.

From a cursory survey, accompanied by no official data, it would appear that more hosiery was being produced in October than in either November or December. Accepting such a premise, output in the five weeks partial holiday should figure around 4,165,483 dozens for the 280 manufacturers whose reports for October appear in the Department of Commerce tables. This would be about 700,000 dozens less than in the month of October, at the end of which month the 280 manufacturers reported un-

Every Low Tide is followed by High Tide



WILDMAN
THE WORLD'S STANDARD

The
WILDMAN
SINGLE HEAD
Full-Fashioned
Hosiery
Machine

Literature on Request
WILDMAN MFG. CO.
Full-Fashioned Division
NORRISTOWN
PA.

filled orders and stocks on hand, finished and in the gray, expressed in dozen pairs, as follows:

	Unfilled orders	Stocks on hand
Men's full fashioned	21,760	55,695
Men's seamless	1,763,754	2,859,100
Women's full-fashioned	1,013,313	2,501,605
Women's seamless	418,529	735,747
Boys', Misses', Children's	877,343	1,434,098
Infants'	387,436	478,264
Athletic	7,892	3,650
Total	4,490,027	6,069,159

In all of the major items excess of stocks was too great for price steadiness, stocks in mills exceeding unfilled orders for men's seamless by over 1,000,000 dozens, women's full fashioned by nearly a million and a half dozen, and boys', misses' and children's by more than a half million dozens. In each of the seven classifications, stocks at the end of the month were far greater than the month's output. Production, orders booked and net shipments were pretty well balanced, however.

Suggestion that in certain cases exemptions be provided for were offered at the hearing on December 11. This was promptly antagonized on the ground that if exceptions were made on petition of any one or a group of manufacturers, it would be but a short time before all mill managements would find a pretext for claiming an exemption.

Regardless of the spirit in which the Administration's decision shall be received, application of the new rule, it is pointed out, does not imply that the idle mills will at once get into production or that the partly idle will increase their work time to three 8-hour days per week. That there would be some stretching of the schedule to 24 hours a day was predicted. Much of the diminished output of small mills, it was thought, would be offset by increases in mills that were not able to keep the pace while stocks were accumulating and prices tumbling faster than they rose in the palmiest days of the NRA boom markets, with all hands apparently taking care to make them high enough to cover increased operating cost under the code.

Following are the temporary changes in the hosiery code as decreed by General Johnson upon recommendation of the Code Authority:

1. Hosiery knitting operations shall be curtailed for the period of five consecutive weeks beginning with the week of Monday, Dec. 18, 1933.

2. The curtailment of knitting operations shall be equivalent to at least a 40 per cent reduction from the maximum weekly shift and machine hours permitted under Article IV, Sections 1, 5, 6, 7 and 8 of the hosiery code.

3. The curtailment shall be effected by a reduction of the maximum weekly knitting shift hours from 40 hours. Such 24-hour shifts shall be distributed into three days a week of eight hours each, such days to be Wednesday, Thursday and Friday. Where the code provides for a maximum weekly shift of less than 40 hours, the curtailment shall reduce such hours by at least 40 per cent.

4. A plant may distribute its allowed 24 knitting hours a week for each shift in any manner, other than that prescribed in paragraph 3, provided it does not conduct knitting operations on Saturday, or exceed two shifts of eight hours each in any one day.

5. A plant which elects to distribute its curtailed weekly knitting hours in a manner other than that prescribed in provision 3, shall record with the hosiery code authority the specific method of distribution of hours put into effect by it.

In all cases where a plant does not file with the hosiery code authority evidence that it is distributing its hours by any method other than that prescribed in paragraph 3, it shall be deemed to be operating under the method prescribed in paragraph 3.

6. Every hosiery plant shall post conspicuously in its knitting departments its schedule of knitting hours under the form of curtailment which is in effect in the plant, together with a copy of this order.

7. No curtailment of knitting operations shall apply to the knitting of infants' goods, in view of the fact that the manufacture of such goods is especially active during the season covered by the proposed period of curtailment.

8. On or before Jan. 17, 1934, the hosiery code authority shall submit to the administrator a report on the effect of the first four weeks of the curtailment. After consideration of such report, the administrator may extend the period of curtailment for an additional period of not to exceed three weeks, if, in his judgment, such extension is desirable.

9. Where a plant believes that the immediate circumstances in its case are such that an undue hardship will result to it from the prescribed curtailment, such plant may petition the code authority for an exemption therefrom and shall submit to the code authority the essential facts and documents, in properly attested form, to support its petition.

The code authority shall consider and investigate the facts submitted, and shall take appropriate action thereon. Pending disposition of such petition, the plant shall comply with this order. The petitioner may appeal to the administrator from the decision of the code authority.

A New Mortgage Loan Service

THE Northeast Industrial Mortgage Loan Co., to effect loans to industrial and commercial establishments, has been formed in Philadelphia and will operate under a Pennsylvania charter. The moving spirit in the organization of the company was Arthur F. Morton, a public accountant who for some years has been active in cost finding and preparation of financial statements for Philadelphia hosiery manufacturers, his clientele embracing also representative concerns in other fields.

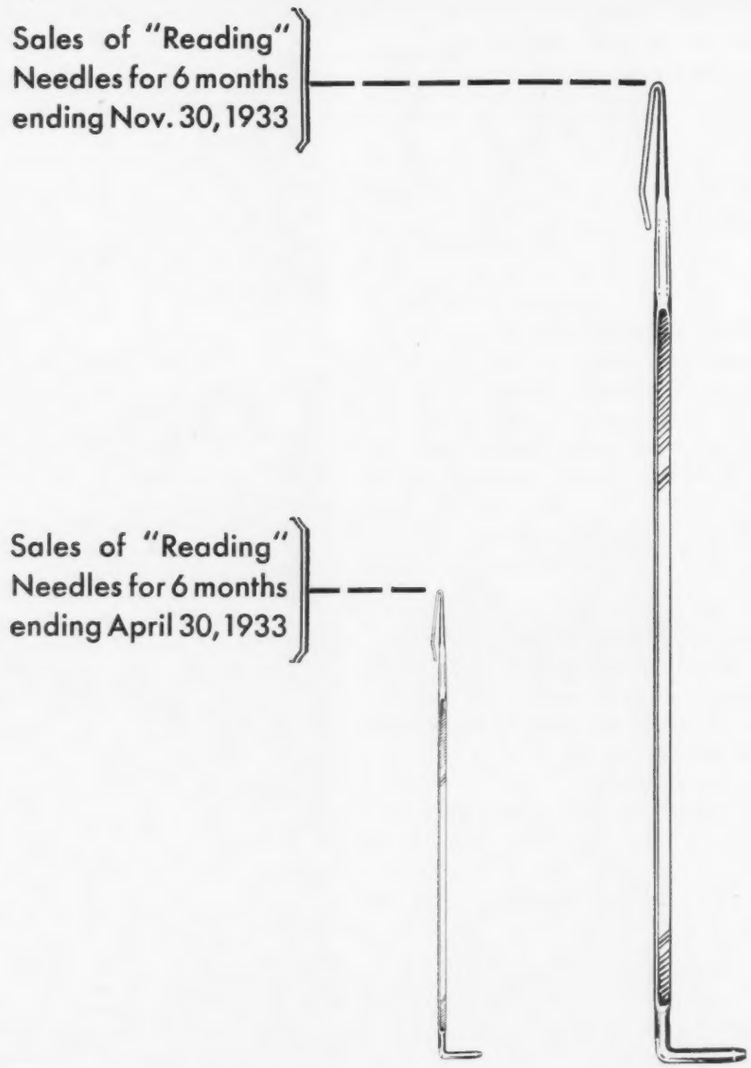
When meager information for this issue of COTTON was released for use, the company was not ready to announce its directorate and the details of its working plans. It was stated, however, that "representative citizens had been invited to accept membership in the Board of Directors," that their names would be announced shortly in connection with a statement as to the company's manner of procuring loans. "We have made so much progress with all of the preliminaries and steps for completing organization that we probably will be ready very soon to entertain applications for loans," Mr. Morton stated.

A newspaper announcement which Mr. Morton stated was premature, although it went no further than a mere reference to the type of service which the company will supply, brought a sheaf of letters informally asking, in effect, that the writers be kept in mind when applications for loans are formally received and prepared for action. Among the early applicants it is stated by a stockholder of the company, were around 20 manufacturers of hosiery.

The Northeast Industrial Mortgage Loan Co. has a powerful affiliate in the Northeast Chamber of Commerce, whose membership consists largely of business interests in the Northeast, or Kensington, section of Philadelphia, where most of the city's industrial establishments are located. In recent years a number of manufacturers have removed from Philadelphia to other communities, giving as their reason, among others, high taxes and rentals and labor controversies. The city in December reduced the tax rate as a step toward checking removals on the score of high rentals and taxes. It was felt in business circles that with financial assistance through loans facilitated, industrial Philadelphia may recover some of the ground lost through emigration of dissatisfied manufacturers. Most of the banks, it is stated, are not eager to accept machinery in textile mills as collateral for loans, and the banks for some time have had the bars up against considering, as collateral, machinery on which payments have not been completed.

While official information as to how the Industrial Mortgage Loan Co. may "fill a long felt want" in the matter of extending financial assistance to mills is missing, it is pointed out there is no legal restriction on accepting a bill of sale of machinery and perhaps give it additional value by using the bill of sale as collateral, if need be. In any event, it is taken as a foregone conclusion that loans from the RFC to the Mortgage Loan Co. will be amply secured and that the directors of the company will be inclined to scrutinize applications for loans even more closely than do some of the admittedly bank directorates.

Those closely connected with the organization preliminaries express enthusiasm over the plans and prospects of success. Borrowers are to pay the company six per cent, it was unofficially stated, while the company will borrow at four per cent. Each borrower probably will be required to be a stockholder in the mortgage loan company.



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During the past six months the demand for "Reading" Needles has more than doubled—and sales are still increasing . . . Designed and built by the makers of "Reading" Machines particularly (and exclusively) for service in "Reading" Machines . . . Each "Reading" Needle is thoroughly tested—and specially straightened . . . Write for samples.

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SPRING BEARD NEEDLES

A Survey of the Statistical Position of Full-Fashioned Hosiery

THE full-fashioned hosiery industry in the United States in the years commencing with 1928 established an almost unbroken record for steady improvement in statistical position. In reaching this deduction comparison is made of orders booked, unfilled orders at month-ends and stocks in hand. Obviously, 1933 hardly could be included on a comparative basis for the reason that for stealing a march on codes of fair competition in the hosiery trade, production went ahead by leaps and bounds in a steadily rising market in the apparent assumption that all of the prophesies of higher prices, more employment and more purchasing power, would be fulfilled. The result was not a new or strange result of excessive speeding up.

The slump, which might have been foreseen—and was, by some interests—left in the markets a descent as sharp, relatively, as the climb to dizzy heights. However, the statistical position of the full-fashioned industry is stronger in certain respects than in some recent years when each month was a boom month.

Month-End Stock Figures Reviewed

According to a compilation of reports from 280 identical manufacturers representing 334 mills, for October 1933 and 1932, stocks of full-fashioned hosiery in mills at the end of each month were around or below a reasonable level. Considering stocks are assumed to embrace seven sizes, and four to six numbers in small mills and 25 to 30 in large ones, distributed among approximately 300 mills, a carry of about 2,500,000 dozens under normal market conditions is not to be looked upon as excessive. In the years 1928 to 1932 inclusive, stocks at the month-ends ran close to 3,000,000 dozens, those figures being exceeded quite frequently.

At the end of each month in 1928, mills reported stocks exceeding 2,500,000, and again in 1929 to June, when, it appeared, dealers left manufacturers with past-due delivery goods. In the four months, July to October, they closed their books at the end of the month with over 3,000,000 dozens.

Passing over 1930 as a year of unpleasant memories for most hosiery manufacturers, stocks at the end of January, February, March and April and September and October, 1931, were well beyond 3,000,000 dozens, averaging around those figures for the year. In 1932 the 3,000,000 mark was passed in February and March, and 2,750,000 dozens were exceeded at the end of each of seven months of that year. At the end of no month of 1933 did stocks as reported by 280 manufacturers reach 2,900,000 dozens. In respect to stocks, the mills have improved their position, and with absolute certainty of at least partial control of production for an experimental period, the situation may be expected to show further improvement after 1934 spring trading gets into its stride.

Another gauge for comparison is the monthly compilation of manufacturers' reports of unfilled orders. In this respect 1933 does not present as good a showing as in the preceding last half decade. The 1933 month-end peak in unfilled orders was recorded in June—1,545,799 dozens. The figures for October were 1,013,313 dozens, which, however, was 280,000 odd dozens less than in the corresponding month of 1932. From January to April inclusive the range was from 603,720 to 866,440 dozens, February presenting the high score and April the low. In the two years 1928 and 1929 month-end unfilled orders ran above 2,000,000 dozens in only four months—January and February, and November and December. In 1931, February was the only month for which unfilled orders exceeded one million dozens, while last year the figures were over one million dozens for August, September and October, the highest being 1,417,586, for August. In each of the four months January to April, unfilled orders aggregated less than one million dozens at the end of the month, and since then exceeding one million dozens.

In matter of orders booked by months, 1933 established a record, passing beyond the 2,000,000 dozen mark in March, April, May and June, but this was dimmed by cancellations and lessened business in subsequent months. In the four years 1928, 1929, '31 and '32 a month's bookings exceeded 2,000,000 dozens in an aggregate of eight months. So, barring cancellations, 1933 did not come far from presenting an average pace equalling that for the four years referred to.

Doubtless the statistical position of the full-fashioned industry in 1934 will show greater strength due to limited installation of new equipment and elimination of much that is obsolete.

THE Fidelity Machine Co., Philadelphia, manufacturers of seamless knitting machines, reported as of December 1 two months production sold ahead, more inquries than in a long time, and, making comparison with April 1, an increase of 118 per cent in number of employees and 172 per cent in the dollar measure of payroll, a statement to this effect coming from H. W. Anderson, president of the company.

* * *

BY REASON OF the number of surveys which he has conducted for the full-fashioned hosiery industry, Dr. George W. Taylor, recently appointed on the Recovery Administration Hosiery Code Authority, is perhaps more widely known among hosiers than any other deputy administrator. His first official act under his appointment was in connection with the recent hearing on the petition by which work time in the hosiery industry is reduced 40 per cent.

* * *

A CHRISTMAS FUND of $122,121 was distributed among the employees of the Apex Hosiery Co., Philadelphia, who made weekly contributions to the fund from their weekly pay envelopes, as they do for their vacation fund each year.

Methods of Keeping Looper Points in Good Condition

EDITOR COTTON:

In a recent issue one of your contributors asks the following question: "We should like to hear from some of your correspondents as to what lubricant or treatment of whatever kind they have found best for keeping looper points in proper condition."

Keeping looper points in proper condition does not necessarily require a particular kind of lubricant or treatment; it does, however, require a certain amount of attention. There are on the market a number of point-preserving pastes, greases, etc., which are used on looper points mainly to prevent rusting when machines are idle for prolonged periods. Most mills do not use such greases on machines that are in constant operation, as one would use a lubricating oil. Rust is one of the chief enemies of looper points; it comes mainly from two sources, namely, perspiration from the operator's hands or forearms, and atmospheric conditions. Some operators have more trouble with points rusting than others, due to physical conditions. Mills located in places where climatic conditions are generally damp will have more trouble with points rusting than mills located in a dry climate. Local conditions must therefore be taken into consideration in caring for looper points.

Care of Looper Points

Many mills follow the old custom of saturating a piece of fabric in light oil and laying it on the points after each day's work, or especially over week-ends to help prevent rusting. Others make a cover of fairly heavy fabric suitable to slip over the entire machine after each day's work. Such a cover was pictured and described in the May 1932 issue of COTTON, page 106, and we have found them very helpful in keeping looper points and other parts of the machine in good condition.

When looper points become rusty or rough, there is but one thing to do and the sooner the better: remove the rust and polish the points. A simple remedy which has worked well for us is to smear point-preserver, white vaseline or sheep tallow (the latter must be free from salt) on the points, and then let the machine run without putting goods on the points or having it threaded up. The action of the needle and the looper brush on the tallow-covered points will help to polish them and remove the rust.

◆ ◆

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

In severe cases, saturate the points with a light penetrating oil and allow to stand overnight; then follow up with the tallow or grease treatment the next morning, allowing the machine to run for several hours, then wiping off the points carefully. If necessary, repeat the operation just described several times.

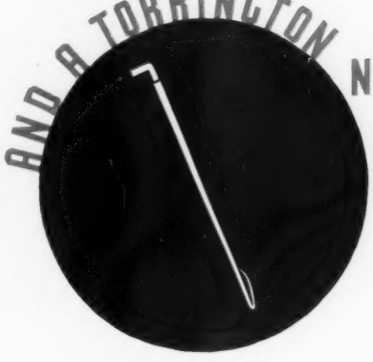
Points can also be roughened by improper adjustment of parts which come in contact with them. The main problem is to watch the points carefully and go after them when they show signs of rusting. The use of excessive amounts of grease, tallow, soapstone, etc., on looper points was more common in days gone by when dark shades predominated in most lines of goods. Present-day styles call for lighter shades in most lines except half-hose where darker shades are usually in demand.

Dirty looper lines are a menace to any mill producing light shades in dyed numbers as they are apt to cause re-dyes and in many cases it is impossible to dispose of goods with soiled or dirty looper lines, as first-class merchandise. Mills making ingrain numbers with light colored heels and toes are also confronted with the problem of soiled looper lines as it is very difficult and costly to wash or dry clean such goods without injuring their appearance.

It is possible that looper points are suffering for the want of lubrication, due to conditions stated, in many mills; however, this problem should not be difficult to overcome if given a reasonable amount of attention.

CONTRIBUTOR NO. 6272.

Made today's way



Torrington needles are machine-produced. We feel this is important, for the machine is *modern.*

As modern, for instance, as wireless telegraphy, compared to the primitive "hand" method of signalling messages.

Indians set a beacon light on a hill, to communicate with distant tribes. Picturesque . . . but not accurate.

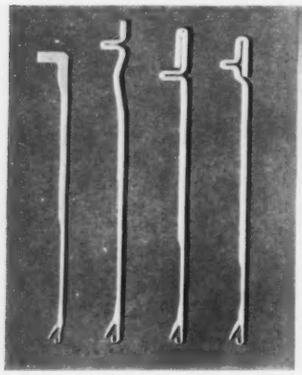
Modern messages are transmitted by "machines"... mechanical signals... electrical waves, conveyed instantly to points thousands of miles away . . . accurate, not subject to change.

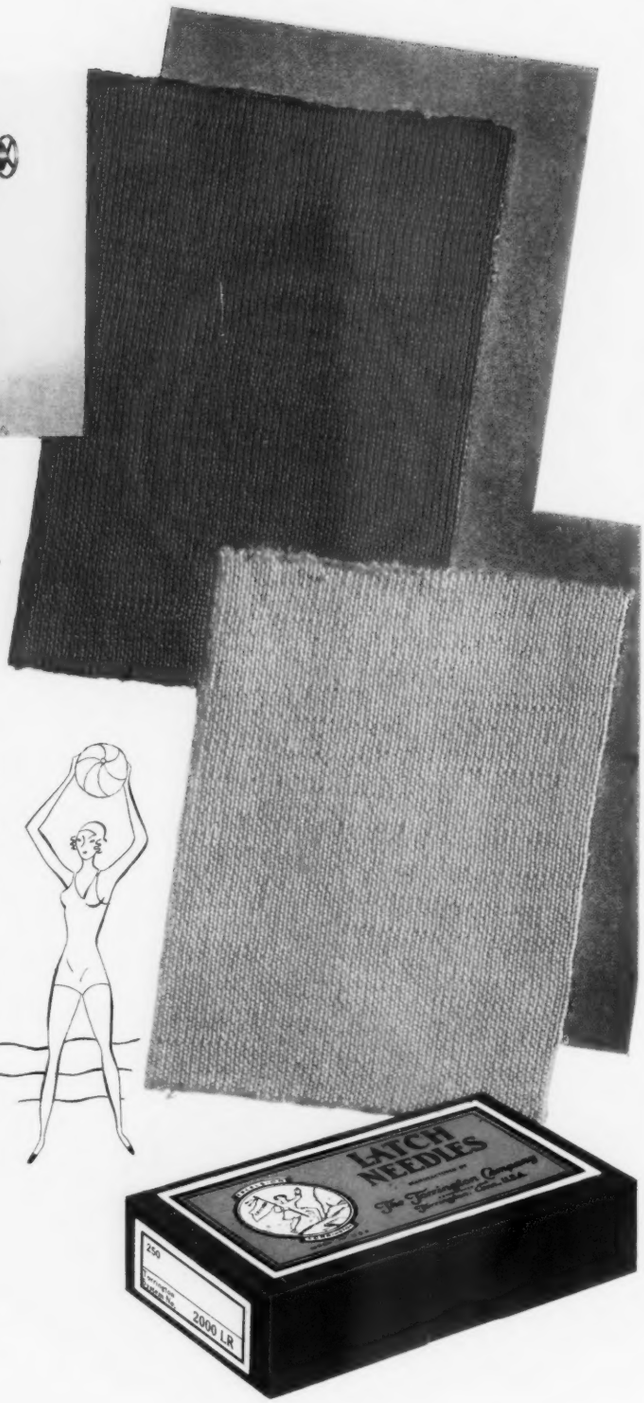
Torringtons, too, *are made by machine.*

Torrington Needles and Parts will be exhibited at the Knitwear Industrial Exposition, Booth #14, Grand Central Palace, New York, Feb. 12 to 16, 1934.

TORRINGTON *SPRING BEARD* **NEEDLES**

The Wildman machine. And the fabric was knitted on it by Jantzen Knitting Mills





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FACTORIES AT:

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Torrington Needles and Parts will be exhibited at the Knitwear Industrial Exposition, Booth No. 14, Grand Central Palace, New York, Feb. 12-16, 1934

TORRINGTON *Latch* NEEDLES

EDITOR COTTON:

This is in answer to your contributor who wishes to know what lubricant or treatment of any kind is suitable for keeping looper points in proper condition.

Our mill has 100 loopers, and as these loopers are kept going most of the time, the points are always clean and need little if any lubrication of any kind. However, about once a month we brush these points with a fine needle oil.

Loopers that are kept working need little attention on the points, but if the machine stands for any length of time it is advisable to lubricate the points with vaseline as a rust preventive. Also, a canvas cover, made for our standing loopers, helps a great deal as a rust preventive.

CONTRIBUTOR NO. 6271.

Handling Full-Fashioned Press-Offs

EDITOR COTTON:

I am answering the question of "CONTRIBUTOR NO. 6253" with reference to handling press-offs at leggers, on full-fashioned work. We have tried here the three systems generally known for handling these.

First, the use of a set of bars, on which the press-offs are topped, then transferred to the legger. The advantages of this method are, no lost time for the legger except when transferring the total number of bars. The disadvantages, which I believe outweigh the advantages, are accumulations of different lengths, extra hand for topping, no incentive to prevent press-offs except the loss in production (which doesn't have much effect), and the lost identity of the knitter when the press-offs are transferred from the common accumulation. This resulted in the knitter on whose machine they were transferred not worrying if one finished with a defect, since it was already marked from another legger (unless topped above the narrowing). We did not use our bars very long before we found that it paid to do this otherwise.

Second, backwinding the press-offs, the system we now use. This prevents no delay at any time at the machine, and no silk is lost. But the disadvantages are that backwound silk does not run as good, extra help must be paid for backwinding, and, as in the first method, there is no incentive to prevent press-offs, except the loss of the stocking in production. Before we read the contributor's question, we were checking up on this, and had decided to change to the third method, which we are now doing.

Third, topping the press-offs on the machine by the knitter. The advantages here are the incentive to prevent them in order that he will not have to top them, no backwound silk, no accumulations, no extra help to handle them. The disadvantages are delay of machine production while topping (slight, if handled properly), tendency to hide or destroy press-offs, knitters must be trained to top on, and the questionable damage to needles. This last is negligible, since the knitter is held responsible for his needles and their condition, hence he will see that the topping is done without any damage that can be prevented.

In the first and third methods, there is some silk lost, from ravelling to the topping point, but that is not enough, in our opinion, to offset the advantages of no accumulation and the dispensing of the expense of handling. When we used bars we paid for the topping, as we do for the backwinding. With the new conditions in the industry coming into effect, under the Industrial Recovery Act, this will be a larger item and is worth eliminating.

In using the third system, it must be handled with close supervision and attention. I am installing a system used by a mill for which I have great respect, and do not claim the details as my own. The topping is done at certain points, so the legs can be raveled to that exact course, according to the length of the press-off. These points are at the end of the first narrowing below the welt, top of the large or second narrowing, end of that narrowing, and start of the heel tab. After it has been started, training knitters to top is a small matter, as each is first taught this.

If the tendency to hold out or destroy a press-off is handled promptly and decisively, this will be eliminated and in time will not be of sufficient importance to be considered. The press-offs, of which there should never be over one or two to a knitter, are topped on whenever he has another, thus keeping the accumulation to a minimum. If a press-off before the welt is turned, it goes to the waste, and is salvaged.

If there is anything further along this line, I will be glad to have other viewpoints. Much depends on the size of the mill; perhaps a large mill finding it advantageous sometimes to have special legger and bars to do this entirely. I still think, though, that in this case it would pay to use the third method *properly*.

CONTRIBUTOR NO. 6259.

Knitters Do Own Topping On Transfer Work

EDITOR COTTON:

In answer to "CONTRIBUTOR NO. 6261", who states that he is making 176-needle half-hose fancies and desires information as to whether it is desirable to have an operator on transfer seamless machines do her own topping and give her a larger number of machines, or to have the topping done by other girls, behind the machines.

The contributor asked, which system is productive of better results as far as production and quality are concerned? Also, does the operator become as expert if she has to do her own topping? And, how many machines should an average knitter operate on 176-needle machines, on each method?

It has always been the practice in our mill to have the operator of the machines do her own topping. There is no reason why the operator cannot do this and still be as efficient as though they were doing operating or topping only.

We have a teaching method which is standard for all operators on this type of machine, and find that they become very proficient, both as to operating and topping, in a short period of time.

Depending upon the speed of the machine, the average knitter operates and tops for five machines. As we have never had the other method, I would not desire

to commit myself but experience favors the former method as explained.

We find that the operator takes more of a personal interest in the machines if she both tops and operates. She feels the machines are hers. Her work is done systematically, using five rings, one for each machine. As fast as she transfers the last ring, she starts topping all five rings. By the time she is through with the last ring, the machines are ready for transferring. She always starts from the same end of the machine.

CONTRIBUTOR NO. 6262.

Answers on Methods of Operating Half-Hose Machines

Several different mills' practices and ideas on this question are given here. Others will be published in later issues . . . . . .

EDITOR COTTON:

I notice that "CONTRIBUTOR NO. 6239" states that he is running on men's fancy half-hose, transfer work, 3¾-inch Scott and Williams' Model B and 3¾-inch Banner machines, and wants to know which is the better method; to give a fixer a *certain* number of machines to take care of, doing the fixing, oiling, taking out bad needles and sinkers, or providing him with more machines with a helper.

Experience has proven to the writer that a fixer should be given a certain number of machines to fix, which should be considered his job, this job consisting of fixing, oiling, and whatever is necessary to keep the machines in working order. By taking care of the details himself, the fixer is in a position to know his machines better, much better than if someone else were doing a part of his work.

Of course, the number of machines required of a fixer to take care of must be considered. If a fixer has too many machines he cannot take care of his job, as it should be taken care of, but if he is given a fair number of machines to look after he can usually take care of any style changing during his spare time. However, if a style change is needed in a hurry, a helper is needed either to change needles, sinkers, etc., or to spend his time entirely on the change until it is completed, provided of course he is capable of doing this work.

As to whether or not to have a special mechanic to do the style changing, or have the fixers themselves do it, again depends on the conditions that exist at any particular mill. A special mechanic for doing this work would be all right, provided there is enough work for him to do, or under conditions where the fixer himself cannot do it. According to my experience, where both special mechanics and fixers are capable of doing this work, it is a question of time. If the fixer has time to do it together with his regular fixing job, where the style change is not rushed, he should be able to take care of it. However, if this is not possible, then it is best to have a special mechanic to do the work in order to get the change made as quickly as possible.

A further question which this contributor asked, "In having this work done by different mechanics, do you have it done by the best man or the less efficient one?"

The writer has always been a believer in developing his less efficient fixers, at every opportunity that presents itself, during the course of a working day. The less efficient men where possible should be given the opportunity to develop into better mechanics. Style changes of various kinds make good experience for these less efficient fixers, and if it is possible to do so, let them work together with the best men in performing this work. If these less efficient fixers do not show the proper results, taking into consideration their handicaps and experience, then it is best to let them go and get men who will develop into good fixers.

The last question asked is, "What do you find to be a good average for needle and sinker breakage per machine per day on work of this kind?" This would depend upon the mechanical condition of the machines, but our experience shows an average of two needles per machine per day and two sinkers per machine per day.

CONTRIBUTOR NO. 6241.

EDITOR COTTON:

"CONTRIBUTOR NO. 6239" asked some questions on running men's fancies, transfer work, on 3¾-inch Banner and Scott & Williams model B machines. My answers below will be based on the Banner wrap stripe type of machine. In order that the questions might be answered fully and properly, it would be necessary to choose one particular type of goods, styles, number of needle and gauge of machine in order to really give the desired information, inasmuch as these four questions cannot be answered in full to take in the various types of hose as a whole due to the varied conditions of manufacturing in different mills. However, we shall answer from a general standpoint.

This man first asked whether on work of this kind it is a better method to give a fixer a certain number of machines to attend to the oiling, taking out bad needles and sinkers, or to give him more machines with a helper. We would advise that a fixer maintain a definite number of machines and take care of oiling, needle breakage, sinkers, etc.

His next question was, "In changing patterns, is it better to have a special mechanic to do this work or to have the fixers themselves do it?" We suggest that it is a better method to have a special pattern man change the patterns and arrange them on the machines.

He then asked if this work is done by different mechanics, whether it is best to have it done by the best men or the less efficient ones. We certainly think that this work should be done by the most efficient mechanics.

This man's final question asked, "What is a good average for needle and sinker breakage per machine per day on work of this kind?" We are unable to answer this in a practical way as it would have to be based on a particular style, number of needle, and gauge of machine and the type of yarns used.

CONTRIBUTOR NO. 6247.

Disagrees about Soap and Oil in Degumming.

EDITOR COTTON:

I saw in "KNITTING KINKS" of a recent issue of COTTON, under the title "Soap Versus Oil for De-Gumming", an article by "CONTRIBUTOR No. 6128" that contains some good advice and up-to-the-minute suggestions, but there are some things with which I cannot agree.

This man said that soap, of one kind or another, has been largely used in de-gumming silk thread for producing boiled-off silk. Undoubtedly meaning the silk boil-off liquor or bast soap that is used in dyeing silk skeins. But he also said, "I doubt if soap can be improved on for such purposes, especially where some straight olive oil or neatsfoot oil is used in connection with the soap." That statement is quite new and strange to me.

I have boiled off and dyed skein silk for a good many years and never heard of adding olive oil or neatsfoot oil to a degumming bath. I was taught that nothing but the best grade of olive oil and plenty of it would do for that purpose. Many things have been tried but to my knowledge olive oil soap is still the best and only material used.

I thoroughly agree with this man that there is no half-way point about de-gumming silk; that it is either de-gummed or it is not de-gummed—in spite of the fact that there is a text book in use in some of the technical schools of this country that teaches that part of the gum can be left on the silk by reducing the amount of soap and the duration of boiling. (This refers to the processing of souple silk). This may be possible in a beaker in the laboratory, but it is not possible in a practical way in the dyehouse. It simply cannot be done that way. Silk is either de-gummed or it is not, as this contributor stated. When attempting to strip the sericine from silk in a practical way it has to be stripped thoroughly or it will come down in streaks and patches and a sorry looking job will always be the outcome of it.

Another item with which I cannot agree is where this man says that, "The objection to the soap bath (de-gumming and dyeing in a soap both) lies in the fact that the soap produces entirely too much suds, etc." As a matter of fact, the boil-off bath correctly made up of good olive soap will not foam much more than a de-gumming oil. If this correspondent has watched a boiling-off in operation he cannot have failed to notice the subsiding of the suds that takes place soon after the hosiery is entered in the soap bath. In a few minutes the foam is reduced quite considerably and stays down until the end of the operation. The reason for this is that the gummy sericine, the oils and softeners used in throwing and knitting, after dissolving in the soap bath, increase the surface tension of the bath, thereby reducing the rotation of suds. A three per cent clean soap bath, with goods that have been de-gummed, will raise more sudsy foam and inconvenience the dyeing a lot more than a 20 per cent soap in the de-gumming bath with the gum in it.

Having dyed hosiery for over 12 years, both in the boil-off bath and by the two-bath method, my reply to this correspondent is that for best finish and conditions in general in fine hosiery, nothing is better than soap, provided the dyehouse has a good supply of clean, soft water. When the water is of a variable kind, with no filters or means of purification available, the dyer has water of an unknown quantity, likely to change any day or any time during the day—as I have had the hard luck to experience myself—then the de-gumming oils are by all means the best to use.

With hosiery containing rayon the use of soap for de-gumming and dyeing is not to be recommended, in my opinion. The oils in the rayon will be a nuisance in the soap bath; they are very hard to emulsify if at all, and will cause no end of trouble, and under such conditions the best results are invariably obtained with a de-gumming oil rather than with soap.

CONTRIBUTOR No. 6227.

A Discussion of the Parts of Scott & Williams Knitting Machines

Plate XXVIII

(This continues the series of short articles discussing the machine parts on Scott & Williams machines, by taking up in order the various plates in the manufacturer's catalog with which all men using this make of machine are familiar.

The first article, on page 126, October 1932 issue, covered Plate I, Plate II, and Plate III; and the second article on page 86, November 1932 issue, covered Plate IV. The third article on page 97, December 1932 issue, took up the parts shown on Plate V. The fourth article on page 94, January 1932 issue, covered Plates VI, VII and VIII. The fifth article, on page 101 of the February issue, covered Plate IX. The sixth article, on page 73, of the March issue, covered Plates X, XI and XII. The seventh article, page 84, April issue, covered Plate XIII, and the eighth, page 89, May issue, described the parts on Plate XIV. The ninth article, page 81, June issue, covered Plates XV and XVI. The tenth article, page 97, August issue, discussed Plates XVII and XXI. The eleventh article, covering Plates XVIII and XXII, appeared on page 93 of the November issue.

It is suggested that in reading these discussions, the reader turn to the plate in question in the catalog and refer to it while reading the comments found in these articles. Furthermore, it will be a good idea to clip these discussions and file them in the catalog along with the plates to which they refer.

The numbers in parentheses following the names of parts are the same numbers used by the manufacturers in referring to the parts in the catalog.—The Editor.)

S. & W. Plate 28

EDITOR COTTON:

You will note that a discussion of the various parts shown on Plates 23 to 27 inclusive is being omitted in this discussion. These plates show parts for S. & W. Models F, Q, O and G, which are either obsolete or rarely used now-a-days. These various models were really stepping stones which eventually led to the development of the Model K machine. I do not know the exact date when the Model K was first put on the market, but I distinctly recall being a Model K fixer's helper back in 1917.

Constant improvement in design and construction of various parts, development of additional attachments, continually bringing out finer gauges—these are but a few reasons why the Model K of today rightfully deserves the reputation of being *the* ma-

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The prescription for better knitting

ROYERSFORD NEEDLES

chine in the line for manufacturing women's seamless hosiery. My remarks in this discussion will apply principally to the plain Model K, spiral attachments will be taken up as a separate device at a later date.

The Bevel Gear

The bevel gear (5555) for a Model K is of the same type as used on all S. & W. machines. The only difference between this gear and those used on plain machines such as the B-5 is that its spokes are machined and drilled to accommodate the bevel gear bevel pinion (6890) which is fastened to the bevel gear spokes with screws (15297), four being used. One of the bevel gear spokes is also drilled to accommodate the two adjusting screws (15220) which provide a simple method for adjusting the bevel pinion (6890) forward or backward.

Loose bevel gear screws (15297) very often cause dial jack and hem troubles; failure to tighten them securely after adjustments have been made is usually the cause; occasionally they will work loose of their own accord. Excessive side play in the bevel gear (5555) can also cause make-up and transfer trouble, broken dial jacks, and the like. This side play can be taken out easily by loosening the auxiliary racking pawl lever cam set screw (15091), moving the bevel gear (5555) to the left as far as possible (without binding against the gear ring) then moving the auxiliary racking pawl lever cam to the right so that it rests flush against the frame and main shaft cap, and tightening the set screw (15091) securely. Once this adjustment has been properly made, no further trouble will develop from this source as it will make the bevel gear (5555) run steady and prevent what is usually termed a backlash. What really takes place is this: Too much side play in the bevel gear prevents it from meshing properly with the gear ring. It also prevents proper meshing of the bevel pinion (6890) with the drive shaft bottom bevel pinion (6889). The change in mesh of teeth at these points causes the dial to advance and retard in relation to the cylinder when the bevel gear moves from right to left while in motion. Trouble is bound to develop, especially on fine gauge machines.

The Vertical Drive Shaft Bracket

The vertical drive shaft bracket is held in position by two screws (15474) which pass through the bed plate and into the frame of the machine. A large hole in the bed plate and enlarged holes in the bracket permit easy adjustment by simply loosening the screws and placing the bracket in the desired position. Constant running will cause up and down play in the vertical drive shaft (6891) due to wear on both ends of the bracket itself and on the top and bottom bevel pinions (6908) and (6889). This can be overcome by placing additional washers like (15728) or thinner if necessary between the pinions and the bracket on either end, depending on whether the vertical drive shaft should be moved up or down so the pinions will mesh properly at both ends. In extreme cases it may become necessary to renew the shaft shim and re-set the pinions on both ends.

Both top and bottom ends of the vertical drive shaft bracket should be lubricated regularly to prevent unnecessary wear on the shaft, bracket and pinions.

The vertical drive shaft bracket shown on Plate 28 is of the old type. A new style bracket has been available in recent years which is much sturdier, and also has several new, valuable features which were lacking in the old style bracket. The various pinions which drive the dial, including (6890—6889—6908) and others shown on Plate 31 were also changed to spiral cut teeth in place of the plain teeth as shown on the plate. The vertical drive shaft top bevel pinion has also been changed; instead of being fastened to the shaft with the customary taper pin it is held in position with a key and set-screw arrangement. This method makes vertical drive shaft and pinion adjustments simple and flexible. The new type vertical drive shaft and bracket with spiral cut pinions has proven to be a real step forward as it has reduced lost motion in meshing the various pinions to a point where it is almost negligible and consequently dial jack, hem make-up and transferring troubles have been greatly reduced.

The Latch Ring

The Model K latch ring (6126) is of the same type as used on plain machines; it is *not* adjustable due to the necessity of fastening the latch ring bracket (6113—Plate 15) with dowel pins in order to keep the dial centrally located and the latch ring set in the position determined when the machine was built.

There is no doubt in the machine fixer's mind about the importance of keeping both latch ring and dial centrally located in relation to the needles and the cylinder. For this very reason the machine builder put the dowel pins in the latch ring bracket; also to simplify getting the latch ring and bracket back to its original position when removal and replacement becomes necessary in making repairs of various kinds. No attempt should be made to file, remove or otherwise tamper with the dowel pins in trying to overcome dial troubles. Such practices usually lead "from the frying pan into the fire."

Due to the latch ring not being adjustable on Model K machines it became necessary to provide some means of controlling the angle at which the various yarns are fed to the needles. This has been accomplished by supplying an adjustable throat plate (7032) which can be moved toward or away from the needles. When it becomes necessary to move the throat plate nearer to the needles, care should be taken that the edges of the throat plate do not project beyond the circle of the latch ring. Projections at this point will cause bent latches, especially during the time that the needles revolve without having fabric on them. As a rule, it is best to keep the throat plates on Model K machines just as near to the needles as possible, leaving only enough clearance so that the needle hooks do not rub against the face of the throat plate and so the latch ring can be raised without breaking or bending the needle

hooks. The steel inserted plates (7863) and (7857) are placed so they will prevent the needle latches from coming in contact with the latch ring proper. The steel inserted plates give a great deal of service; they can be re-polished a number of times at points of wear, and the cost of renewal is low.

The Rack Wheel

The rack wheel (5540) is of the same type as used on other S. & W. machines except that the teeth are arranged to suit the drum movement necessary for the Model K. It is equipped with the tooth plate (9142) which prevents the main pawl plate from making contact with the tooth where it is located until the necessary auxiliary drum movements are completed. The belt shipper drum cams (5364), (5810) and (5809) are placed on the shipper drum so they will shift the belt to the intermediate pulley and slow up the machine during the hem make-up, hem loop transferring and anti-runback course. The belt shipper cams should be set so they will slow up the machines *at the proper time* to prevent broken needles and injury to various needle raising or lowering cams.

The Auxiliary Racking Mechanism

The auxiliary racking mechanism consists of the racking pawl lever cam (6274), the racking lever (5803), the racking pawl (6262), the pawl plate (7313), and the pawl spring (6607). The racking pawl lever is pivoted on the belt shipper shaft (6507) and the motion to operate the lever is gotten from the lever cam (6274) which is mounted on the hub of the bevel gear (5555). The racking pawl lever cam is adjustable forward or backward so the auxiliary drum movements can be timed to co-ordinate with the main pawl drum movement. Perfect timing of this combined source of motion is vitally important during the process of making the hem.

The auxiliary racking pawl spring (6607) keeps the lever (5803) in constant contact with the lever cam (6274). It also keeps the pawl plate in contact with the various tooth plates, (shown on Plate 8), which are fastened to the outer edge on the main drum.

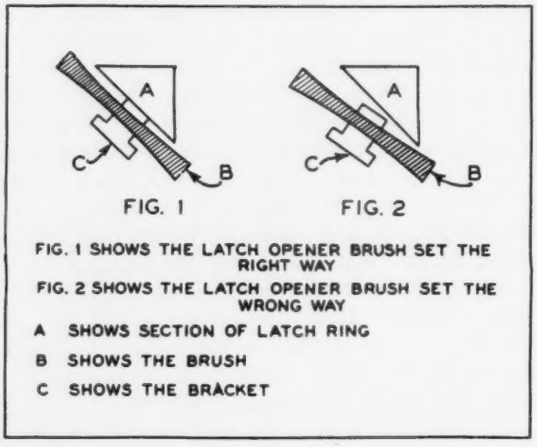
Two factors must be kept in mind when making auxiliary racking pawl adjustments. They are: *time* and length of *stroke*. Very often confusion arises as to whether to change the *time* at which the stroke is made or change the *length* of stroke.

The auxiliary pawl plate (7313) is easily adjustable for wear. Constant rubbing against the main drum will in time produce a sharp edge on the pawl plate (7313). This may cause the plate to dig into the drum and make extra moves, or, in other words, move the main drum at the wrong time and give trouble. The working end of the pawl plate can be reground several times before it becomes necessary to discard it. Frequently auxiliary pawl plates become badly worn in a short time due to the pawl spring being too short or of a larger or heavier size not intended for this purpose.

Most of the old Model K machines were equipped with a latch opener brush which is held in position by the brush bracket (7106) and stud (6728). Mechanical latch openers similar to the type used on rib machines were supplied on later models.

The Latch Opener Brush

Improperly set latch opener brushes will cause skipping in the heel and toe by the bristles interfering with the slack yarn being pulled back by the yarn take-up; also by the brush failing to revolve freely. Hem loop make-up menders can also be caused by the brush not being set at the proper angle in relation to the needles, thus causing the needle latches to close instead of open. I have attempted to show the right and wrong ways to set a brush in



the accompanying sketch. Fig. 1 shows the brush set the right way and Fig. 2 the wrong way. *A* shows a section of latch ring; *B* the brush; and *C* the brush bracket. After the brush bracket has been set to hold the brush at the desired location in relation to the needles coming up on the left side cam it is easy to twist the brush bracket so the brush will lay close to the latch ring as shown in Fig. 1.

The Welt Presser

Production losses, machine trouble, wasted material and damaged parts can all be caused by careless or improper welt presser adjustments. Due to the number of duties which the welt presser must perform, it is essential that the fixer analyze the various troubles which can be caused by it before making any radical changes in adjustment. Hurried adjustments made in a hit or miss fashion very often correct one trouble and add two or three others.

The motion of the presser is simple enough, being merely inward and outward. There should be a reasonable amount of play between the alarm bell and the striking ball when the presser is at its innermost position. Normally the welt presser should be in 7/16-inch to 1/2-inch beyond the back of the needles in order to function properly.

Welt presser adjustments are made by moving the adjusting plate which is fastened to the take-up thrust bar or by moving the welt presser rod collar (6924) which is located behind the lever (5558). The adjusting screw (15355) should be set so the lever (5558) will hold the presser about 3/32-inch from

the needles when they reciprocate.

Frequently it becomes necessary in making certain styles to hold the welt presser in or out farther than a normal set-up at a given point. This can be controlled by raising or lowering the individual drum cams which raise the thrust bar. One of the usual difficulties with welt pressers is getting them to move in and out freely due to the limited space between the bottom of the dial and the nose of the sinkers. Very often it requires considerable bending and twisting to make a welt presser operate freely.

Excessive yarn tension, worn-out stitch cams and using extremely heavy hem yarn will all contribute to welt presser troubles by making it necessary to raise the cylinder and reduce the space between it and the dial. Be sure that the welt presser will sound the alarm bell and trip the stop motion in case of load-ups or broken needle butts.

Excessive tension on the welt presser rod spring (6879) should be avoided as it may cause hem transfer loops to break or injure the hem fabric by pressing it too hard. Bending the nose or hook of the welt presser down will make it hold the double sole yarn under the dial and will also be helpful in getting the presser to go under the dial. Too much bend, however, is dangerous, as it may cause the presser to hang on the sinkers as it goes out. Make sure that the welt presser goes out soon enough and far enough so it will not prevent yarns being lifted out from going under the yarn clamp.

The rounded nose of the presser should be free from sharp edges so it will not cut the hem loops while they are being formed or injure the hem fabric while it is being guided down into the tin tube.

Gear Ring Tube and Stationary Tin Tube

The purpose of the gear ring tube (8093) and the stationary tin tube (7562) is to guide the hose downward while being knit. It also protects the goods from oil stains which may come from the top of the gear ring and the inner part of the cylinder. The hems especially are inclined to wad up while being made. It is important to have the gear ring tube set at the proper height to help guide the hem down. Keeping the top of the gear ring tube just under the inside sinker ring will give results, as a rule. When putting in new gear ring tube shields (8349) be sure to polish well the edges which come in contact with the fabric. Constant running tends to polish the inside surfaces of the gear ring tube and stationary tube; as a rule they require very little attention.

The next discussion in this series on S. & W. machines will cover the parts shown on Plate 29 and Plate 30 in the catalog.

CONTRIBUTOR NO. 6038.

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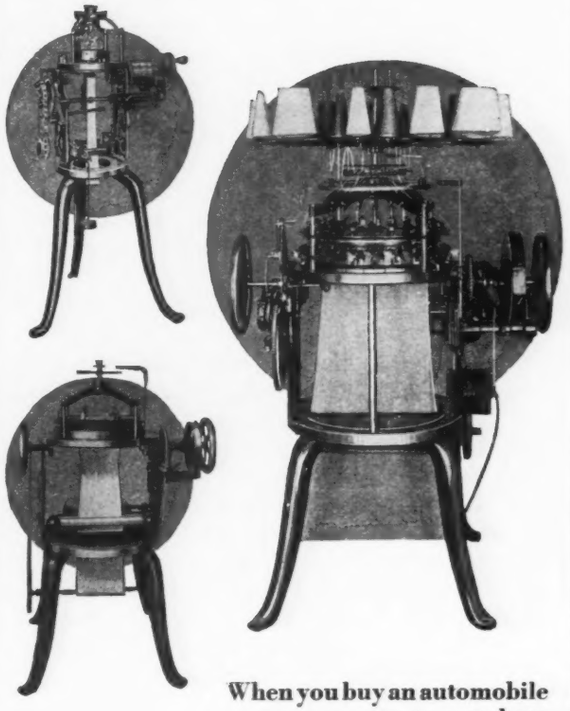

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Special Knitting Machines From ¼ inch to 36 inches.

When you buy an automobile—you are sure to purchase a car with a proud performance record. Why not apply the same excellent logic when you equip your mill with knitting machines? The name Brinton stands as high in its field, as Rolls-Royce, Packard, and Cadillac in the automotive industry.

Depend on Brintons

H. BRINTON COMPANY
3700 Kensington Ave., Phila.
New York Office: 366 Broadway

BRINTON CIRCULAR KNITTING MACHINES
of EVERY Kind for EVERY Purpose

THE KNIT GOODS MARKETS . .

AN assured curtailment of the production of hosiery for five, and perhaps eight weeks at first blush carries the implication in many minds that stocks will be so diminished that a scarcity for desired deliveries will ensue and, in sequence, prices will be higher. This may or may not be a safe deduction from which to reason that efforts should be redoubled during the period of curtailment for taking advantage of such an emergency as is pictured in a spirit of booming the market.

That prices were pegged too rapidly at the outset of a fictitious rise in the markets for textile raw commodities and finished goods has been asserted and reiterated by persons qualified to comment. Prices of silk, cotton yarns and wool rose to heights where buyers began to operate more cautiously, and eventually withdrew from the markets, practically, while a large element of the consuming public bought less of given items, notably silk full-fashioned hosiery, if statements by important retailers are to be accepted as accounting for a piling up of goods in the stores, and the figures from competent authorities revealing in part a tremendous surplus may mean anything.

The Facts as to the Full-Fashioned Statistical Production Situation

Logically, as mills entered upon a curtailment program it was to be assumed that production might for a time be insufficient for meeting current demand, and that therefore surplus stocks would be absorbed. It is not inappropriate in this connection to advert to a study by Dr. George W. Taylor of the Research Department of the University of Pennsylvania, of the effects of deflation in the full-fashioned hosiery industry beginning in 1929, and summarized in his report which was released on June 12, 1933, for publication. That report said in part:

One of the outstanding facts about the full-fashioned hosiery industry in 1932 is that it produced almost as much hosiery as was produced in 1929, the year of peak production. This was accomplished with an operation of only about 58 per cent of the capacity of the industry.

From another source—a Department of Commerce tabulation of reports of manufacturers—it appears that at the end of each month of 1932, when Dr. Taylor found in his survey only 58 per cent of the capacity of the full-fashioned industry was employed, stocks of hosiery, finished and unfinished, in mills ran close to 3,000,000 dozens, exceeding that quantity in February and March.

Accepting the report of Dr. Taylor and the Department of Commerce tabulation for 1932 as representing approximately the conditions in the full-fashioned industry, it would appear there is little reason for believing buyers will at once go into hysterics over curtailment at this time, with probably no greater purchasing power than in 1932, and that therefore it would behoove mills to speed up with two 24-hour shifts per week in the expectation of exorbitant profits to be realized from high prices forced by new demand. In the event that prices to the consumer again reach a level where the consumer would repeat the economic tactics of the fall of 1933, orders to cease profiteering might again follow. Effective demand will have as important bearing on the extent to which production may legitimately be carried under the 24-hour week decree as when the maximum was 40 hours for one shift or 80 hours for a week.

An immediate effect of the shortened work week should be a stiffening in the prices for hosiery in the mills awaiting shipping instructions or accumulated during an absence of orders, and enable sellers in the primary markets to write their own tickets in the matter of cancellations. It will be recalled that in August, 1933, total cancellations amounted to 401,735 dozens, or approximately 10 per cent of the orders booked during the month, according to the reports of 282 manufacturers.

A half dozen or more manufacturers operating moderate size plants who, like some of the larger concerns, have stocks which they would prefer had been billed out for good account, profess to feel there will be no perceptible shortage of hosiery for some time, and state their plants are to be run on a conservative basis, as nearly as possible against orders. "We shall aim to confine stocks to about what we usually require during an average two weeks period," said one of the better known Philadelphia mill executives after mature reflection. Considering declines in prices for 42- and 45-gauge, the bread and butter numbers of quite a few plants, this manufacturer thought, the enforced curtailment was decreed none too soon, but, taking a strictly humanitarian view, he said he deplored the fact that the cut in time effects a corresponding cut in operatives' wages most inopportunely.

Until near the middle of December, all-over silk chiffon 42-gauge stockings were quoted around $5.50 a dozen, and even some of the mill agents regarded that an impossible price to retailers, maintaining $5.75 should have been minimum under the then 40-hour schedule. When, therefore, such quotations as $4.25 to $4.50 came out, there was consternation among producers of what had been rated popular price numbers. It was the entering wedge for offerings of 49 cent stockings for the Christmas shopping period, when, it had been expected, there would be opportunity for retailing silk stockings at legitimate prices.

Some one had to "be the goat" for the price slump, and certain retailing elements conferred that honor on jobbers, who, it was asserted, were unloading prospective passe shades, as some leading stores had made it appear that spring shades would be on the counters in February. This attempt to force the season, then, had a flareback in a price slaughter, which supplies manufacturers with an argument for

accumulating few goods in the gray and finishing only against orders.

It was a plaint of some of the women's shop managers all through the fall season that it was difficult to sell silk stockings to many women for more than 79 cents a pair. At that time mill offerings for such a retail price were largely of types that the better shops hesitated to put in stock for use for promotion sales. It was the experience of one large department store that 69 cents was the more popular price of a near-representative element among women balking at dollar stockings.

Firm orders from several chain store organizations are in the files of one or two Pennsylvania mills, deliveries to start in January and be completed in February. The prices obtained in these transactions, early in December, have not been revealed, but are understood to be near the early December low. The management of one mill getting some of this business, its share amounting to more than 30,000 dozens, states that price at the present stage is a matter of overhead and managerial talent, and he looks for the same disparity in conditions as among mills under 24-hour week operation as was manifest during the trying fall campaign. "We can no more repeal the law of the survival of the fittest than the laws of gravity and supply and demand," he commented. He thought, although he had sold no hosiery at a loss, he thought the provision of the code banning sales for less than cost had been violated as often, relatively, as the recent 18th Amendment to the Federal Constitution.

The Responsibility for Prices Too Low on Full Fashioned Hosiery Lies With—

The responsibility for unnecessarily low prices for silk full-fashioned hosiery is laid to retailers by the merchandise manager of a nationally known women's ready to wear shop which features hosiery, but none in the lower price brackets. "We ourselves, as if we thought we were smarter than the other fellow, educated women to set for themselves certain arbitrary prices—practically all of us were guilty. Now many of these women, instead of buying two or three pairs of stockings at a time will drawl, 'My, prices seem very high; I'll take only one pair this time.' That is where we are paying the penalty for poor judgment. Just as certain will prices, after rising for a time, decline, and no less certain are declining prices going to reach bottom. What we overlook is that we can readily mark them down, and get a lot of applause from customers, while it takes a long time to make the grade from the foot of the hill. Don't blame the consumer, who may have a reduced income, for fighting advances for reasons they cannot grasp."

A shop in a fashionable center, where women congregate for the "delicatessen" of hosiery and lingerie, runs comparatively few promotion sales, on the ground the kinds of bargain goods wanted are not to be had. This shop management in December was, however, credited with staging the premier pre-Christmas sale of 1933, offering three numbers, each of which had been shown for some time as stock hosiery, all priced regularly at $1.35 to $1.65 a pair, but ticketed 89 cents for the two days sale ten days before Christmas. The outstanding number in this sensational offering was a three-thread 54-gauge—the first instance in some time that high quality and low price met. It was available in both plain and fancy top. Ranking second in value was a three-thread silk 48-gauge with Jacquard lace clocks. The number from which the management looks for many repeats was an absolutely ringless 48-gauge. The term "Ringless" was knitted into the hem, as was the gauge of the 54.

A Report on Developments as to Ringless Stockings; Patent Situation Clearing

Ringless hosiery appears to have been more neglected in the advertising than any other conspicuously featured stocking. Yet it is in evidence that ringless probably will play a star part in spring sales. Standard construction has been selling in a modest way for $1.35 a pair for the absolutely genuine. It is a type of stocking which, disposing of one of the more serious defects in silk stockings and diminishing the per cent of "seconds", should be utilized for putting prices on a more healthy level, rather than entered in the competitive price class.

Some of the ringless hosiery on the market is knitted in a variety of thread treatment, twists and combinations by which, it is stated, fairly satisfactory results are obtained at relatively low cost. It is understood, however, that the ringless type on which manufacturers are banking for far reaching permanent results are produced on attachments for which applications for patents are and for some time have been pending. The prospective patents of several inventors are said to be in the control of the Textile Patents Corporation, from which an important statement is expected at no distant day.

If complaints of poor silk being delivered are justified, it would appear that in order to produce ringless stockings it may be necessary to use a form of attachment by which three ends are drawn alternately to the needles and unevenness in the strands overcome by means of an equalizing tension device.

In view of probably no recession in the prices of the better types and finer gauge hosiery, elements in the trade believe women will insist upon a nearer approach to perfection of fabric and appearance, and that therefore dependence may have to be placed in large extent upon the ringless for placating price objectors.

In the assumption that patents covering processes for knitting absolutely ringless hosiery still were pending, most dealers necessarily refrained from advertising hosiery by the descriptive term "Ringless". Litigation over alleged infringement of patents has been so common that secondary interests liable to be accused are waiting for the safety signal.

Report has been current for some little time that a patent issued to Hugo Hemmerich, superintendent of the Berkshire Knitting Mills, owner of the patent, was being infringed, and that action against several alleged infringers was threatened. The patent, number 1,897,051, covers special yarns, knitted fab-

rics and stockings embodying untwisted strands of or ends of silk which, according to claims contained in the patent, "effect increased softness, depth and richness of appearance." The yarn, by reason of its construction and content, knits better and imparts a degree of "glow" to stockings, the result, it is claimed, being "a slenderizing effect on the leg of the wearer".

The ten claims of the inventor, all of which were allowed in the New Jersey Federal Court in which the owners of the patent obtained a verdict against an alleged infringer, cover so many combinations of untwisted silk with twisted that, it is claimed, it is readily possible to obtain a number of distinctive effects. It is related that one manufacturer using the form of construction protected by patent, volunteered a settlement of claim for damages and profits if the owners contemplated filing a suit. One case is pending in a court to which an appeal was taken by a defendant, and it is intimated other suits are contemplated.

Bathing Suit and Underwear Market News

Considering the lateness of the practical opening of the manufacturing season for 1934 bathing suits, mills are expected to book larger than the usual January volume of business. Theoretically, the lines of most mills were on the market since the showing of samples two months and more ago. Little business was taken, and it is announced by a New England manufacturer that owing to the meager returns from offerings and the then dismal outlook for some weeks, the company has discontinued the production of bathing suits. One explanation for the hesitancy of jobbers to place orders in December was the appearance of what were alleged cut prices, but really, distrust of one group of manufacturers of another.

December was devoted largely, by numbers of knitted outerwear mills, to the exploiting of sweaters for spring. Here also orders were slack, for it transpired that some of the large retailing establishments reported carry-overs of goods bought for passing over the counter before Christmas. Dealers therefore were not clamoring for assurance of spring deliveries, and jobbers were apparently out of the market.

The last quarter of 1933 was said in the knitted outerwear trade to be the quietest year-end period in the experience of some of the older establishments. There is, however, and for some weeks has been a fair volume of business coming to the better known and more strongly organized mills upon which distributors may be willing to place dependence for prompt deliveries in season and out of season.

As a reflex of the slacking trading in sweaters and swim suits, worsted spinners have in the past eight weeks had the lightest sales of knitting yarns in a number of years. Much yarn has been thrown back on the hands of spinners, but late last year production was materially curtailed and stocks are believed to have been heavily reduced. Quotations remained unchanged in the absence of sales, yarns receiving support from the markets for raw wool, which at the end of 1933 appeared due for a rise in the event of any activity of moment in manufactures.

Primary markets operating in winter weights of men's cotton underwear is one of the leftovers from 1933. Jobbers last month said they expected to be in need of additional shipments soon after the beginning of 1934. This expectation was based on the representations of retailers who had bought more sparingly than ordinarily. Manufacturers were the only factors in the production and distribution of underwear who were unable to make satisfactory clearances in preparation for a light inventory. Dealers, in view of shortened work time in the hosiery and cotton industries, were expectant of similar action in relation to underwear. Yet there was no anticipation to support the expressed fear of reduced hours and consequent higher cost, retailers in some of the small towns professing to believe higher cost might put a damper on consumer buying.

As in other lines, chain store organizations and some of the more important wholesaling interests led the procession in the buying of spring weights for January and February deliveries. Customers wanted prices guaranteed against declines, something that manufacturers were not conceding, and some of the latter were by no means eager to accept orders for distant delivery.

The line is being drawn more closely as between standard and substandard construction of underwear. By the end of spring, under present code authority intentions, virtually all of the substandard underwear not so marked will have been absorbed for distribution. After that, "Not Standard" probably will be substituted for "sub-standard", in use long before shorties for men were introduced. There is a difference of 50 cents a dozen in the prices for certain lines of standard and substandard panties that were manufactured before present specifications were announced.

THE COMMITTEE appointed by the hosiery Code authority in the matter of the protest against the footer regulations in the code, recently filed a unanimous report with the Code Authority, which will act upon it at the Authority's next meeting. In the meantime Managing Director Constantine of the National Association of Hosiery Manufacturers will be the only person authorized to release the report. S. D. Sanson, president Ajax Hosiery Mills, who led the fight against discrimination, is chairman of the committee. The other members are Hugo Hemmerich, Berkshire Knitting Mills, Austin H. Carr, Durham Hosiery Mills; John H. Brine, Rollins Hosiery Co., and Emil Rieve, president, the American Federation of Hosiery Workers. The discrimination complained of lies in the provision that footer departments which on July 24 were being operated on a two shift basis—total of 80 hours—may continue to operate on a two shift basis, but for only 35 hour shifts. Mills whose footer equipment on July 24 was operated one shift shall not operate more than one shift. Wages for footer operators restricted to 35 hour shifts are to be equal to the rate for 40 hours. These provisions were to remain in effect for six months from the time the code became operative. The period will expire in January.

* * *

WILLIAM H. FURNESS, inventor of the rayon process bearing his name and organizer of the American Rayon Corp., which is equipping a factory at Riverton, N. J., was recently elected president of the latter company. The other principals in the concern are Charles Kirk, treasurer, and M. E. Ashton, secretary.

Many Satisfied Hosiery Manufacturers support our claims for "BROSCO" SILK FINISHES

Users have found that they can secure any desired degree of Low Lustre, Water and Spot Proofing, Softness and Elasticity by using, in proper combination, the following:

"Brosco" Dull Finish
Finishing Compound S. P.
"Brosco" Scroop Oil

Only one bath is required. These finishes will withstand repeated washings, for they're fixed on the fibres.

May we send you further details,—or have one of our practical men call?

"Brosco Product"

SCHOLLER BROS. INC.

MFGRS. of TEXTILE SOAPS, SOFTENERS, SULPHONATED OILS & SPECIALTIES
AMBER and WESTMORELAND STS., PHILADELPHIA, PA.
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AVONDALE MILLS

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OFFER THE ADVANTAGES OF LARGE FACILITIES — QUICK SERVICE

THEY CAN READILY SUPPLY ANY TWIST, PLY, OR PUT-UP IN CARDED OR DOUBLE CARDED YARNS FOR KNITTING, WEAVING OR INSULATING IN ALL NUMBERS FROM 3's TO 40's.

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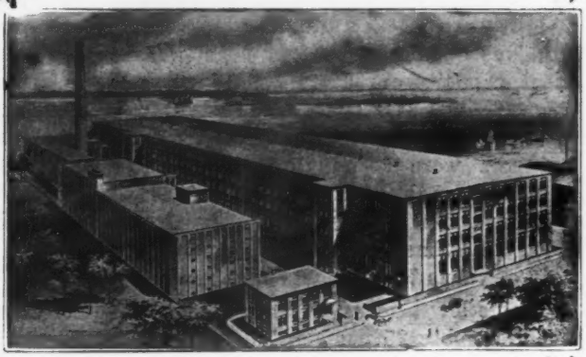


YARNS by QUISSETT

EITHER COTTON OR RAYON, SIGNIFY TO THE BUYER AND SELLER ALIKE . . . THE PRESTIGE OF PERFECTION

The reputation of the manufacturer of a product should be weighed as carefully as the advantages of the product itself.

The name Quissett . . . backed by the experience of nearly a quarter century of pioneering in yarn production . . . is an unwritten guarantee of the finest in materials, strength and uniformity.

Modern yarns . . . produced by 80,000 spindles . . . are up to the minute in every detail . . . quality yarns which make textile selling easier . . . yarns which reflect prestige wherever used.

1910 QUISSETT MEANS QUALITY 1934

Wm. H. Butler, Pres.
Edward H. Cook, Treas. Thomas F. Glennon, Agent

REVIEW OF THE YARN MARKET

Philadelphia, Pa., Dec. 16, 1933.

COMPARATIVE price stability in the face of no demand was an outstanding phase of the cotton yarn market situation in Philadelphia prior and subsequent to the transition from an 80-hour week capacity output to a production shortened by 25 per cent. It was regarded somewhat anomalous, in view of a materially lessened production that spinners were seemingly not able to move their prices a notch or two higher. As an alternative view was a proposal that consuming interests were not at the time sufficiently interested in the acquisition of yarns to anticipate even conservatively.

Some low prices for carded yarns came out after the December 25 per cent curtailment edict became effective, sales being reported on the basis of 24½ cents for 10s single on cones. Business was in several instances lost to houses quoting 25 cents in competition.

A common quotation around the middle of December was 25½ to 26 cents, with 26½ being a firm quotation on high grade southern. The disparity indicated by quotations and sale figures does not conflict with the idea of stability. Offerings of underpriced yarn recently have been an exception.

Executives of most of the more important Philadelphia distributing houses feel that the cotton yarn trade is closing in on a more active market. Cotton, it is pointed out, is relatively stable at around 10 cents. The cost to mills is fixed and the processing tax computed to a nicety. Thus, it appears, the cotton yarn market is at the crossroads where supply and demand decide the direction of prices.

Some observant traders would not be surprised were the 25 per cent curtailment continued through January, since it is the plain purpose of the code administrative authorities to put prices on a higher level.

The move of combed yarn interests for a 48-hour week machine maximum, proved a signal for some sharp criticism by opponents, among them Robert C. Boger of Boger & Crawford, operating a fine yarn plant in Lincolnton, N. C. A 48-hour week in plants spinning fine yarns would increase employment, Mr. Boger admits, but, he maintains, "the increase would be in English and Italian mills." Anyhow, the combed yarn trade appeared last month as in need of a regulator, for prices were at times at sixes and sevens. Dealers reported variances of as much as a nickel in sale prices of numbers in the range 30s to 38s. Some concerns which had sold combed yarns for January delivery were ill at ease pending final disposition of the reduced hours procedure. As was pointed out, customers would rebel at a surcharge for increased overhead, especially if they had sold goods at prices based on contract cost of the yarn—it was presumed they had done so, as it has been the custom to first sell the cloth and then buy the yarn.

Most houses reported the traditional drop in billings during December, but trading conditions proved no damper on the optimism prevailing as to a broadening in business.

Until the middle of December, New York State underwear mills and those in upstate Pennsylvania were manifesting a fair measure of interest in carded yarns, and single combed was in moderate request, at low prices. Coarse counts of carded continued to move, but in slow fashion, to hosiery mills. Due to curtailment of output of women's full-fashioned hosiery, demand for mercerized yarns fell off sharply, with 60s/2 not attractive at 72 cents, although a sale at 74 was reported.

Most divisions of the Philadelphia weaving trades were consuming less yarn in December than for some time, it was asserted by leading operators in carded numbers.

Philadelphia prices, including the cotton processing tax, published December 15, follow:

Single Skeins

4s to 8s	25½	10s	26
12s	26½	14s	27
16s	27½	20s	29½
24s	32	26s	33
30s	34		

Single Warps

10s	26½	12s	27	
14s	27½	16s	28	
20s	29½	26s	33	@33½
30s	35 @35½			

Two-Ply Skeins

8s	26	10s	27
12s	27½	14s	28
16s	28½	20s	29½
24s	32½	26s	33½
30s	35½	40s	45½

Two-Ply Warps

10s	27½	12s	28
14s	28½	16s	29
20s	30	24s	33
26s	34	30s	36
40s	46		

Frame Spun Carded Cones

8s	25½	10s	26
12s	26½	14s	27
16s	27½	18s	28
20s	29	22s	29½
24s	32	26s	33
30s	34	40s	44
30s double carded	37		
30s tying in	34		

Carpet Yarns

8s and 9s white warp twist	25½
8s tinged tubes	24½
8s part waste	23

Two-Ply Combed Peeler Skeins and Warps

8s-10s	33 @34	20s	38
24s	39	30s	43
40s	49	50s	54
60s	60	70s	70
80s	81		

Single Combed Peeler Yarns on Cones

10s	33	14s	34
16s	35	18s	36
20s	37	24s	38
30s	41	36s	44
38s	46	40s	47
50s	52	60s	58
70s	68	80s	79

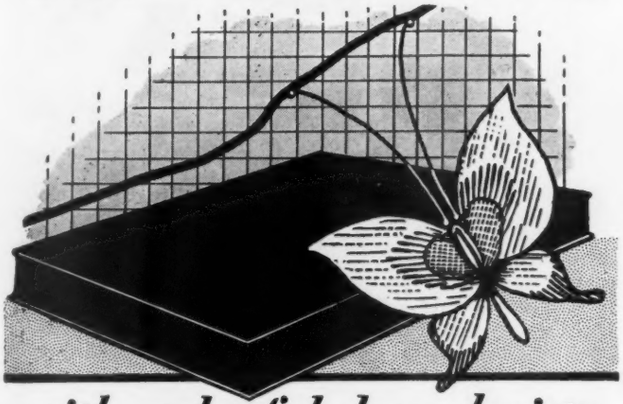
Mule Spun Carded Yarn on Cones

10s	27	12s	27½
14s	28	16s	28½
18s	29½	20s	31
24s	33	26s	34
30s	35½	40s	44½

Mule Spun Combed Peeler Yarn on Cones

10s	33	12s	33½
14s	34	16s	35
18s	36	20s	37
22s	37½	26s	39
28s	40	30s	41
36s	44	38s	46
40s	47		

Boost Your Sales Curve



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Colorful design in textile boxes as handled by Old Dominion is a sound step forward in increasing sales . . . for color by Old Dominion is scientifically executed to add a convincing note of quality — and a profitable eye-appeal to your package. Write nearest plant for samples, prices.

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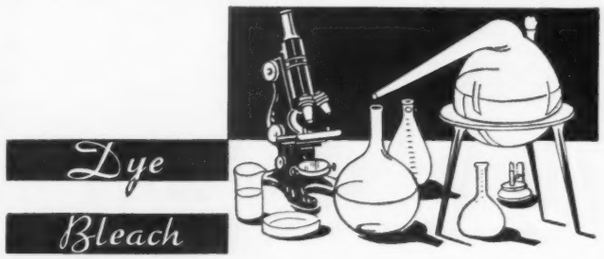
Winston-Salem, N. C. Burlington, N. C. Charlotte, N. C. Asheboro, N. C.

quality OLD DOMINION **Paper Boxes**



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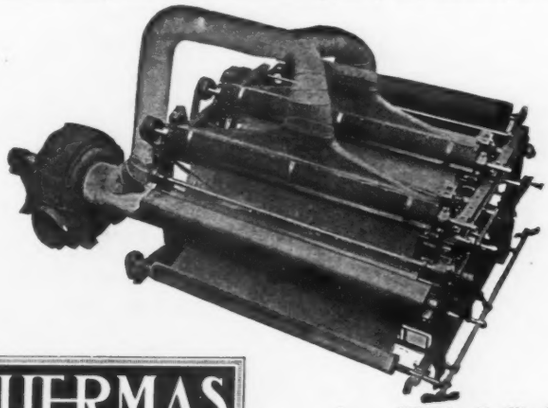

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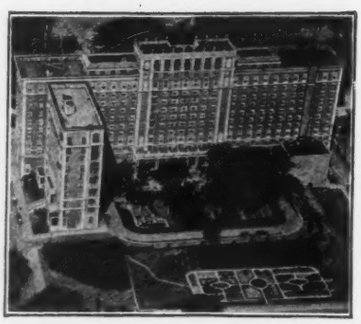

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We assure of our continued endeavor to fill your requirements promptly and with satisfaction to you.

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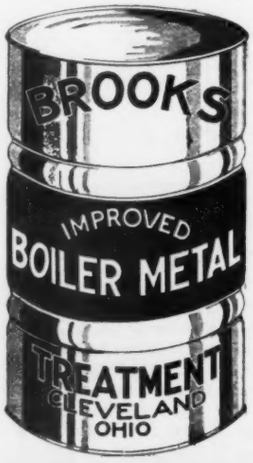

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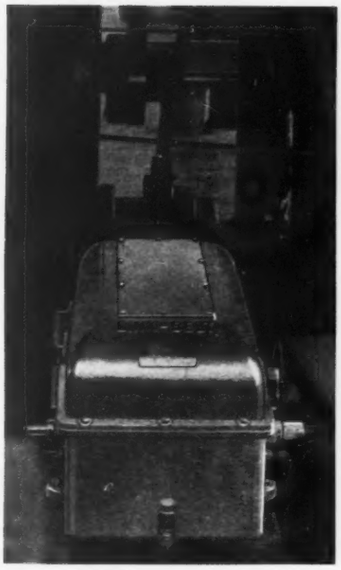

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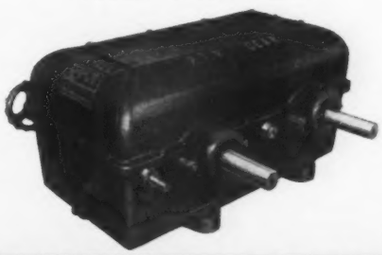

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Have 100% Overload Capacity

The 11 Advantages . . .

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2. freedom from ply separation
3. three to four times longer fastener life
4. higher efficiency regardless of atmospheric conditions
5. freedom from bearing, shafting, and hanger troubles
6. higher efficiency when run at low tension
7. double the overload capacity at rated horsepower
8. freedom from wear on pulley side
9. higher efficiency on small pulleys
10. only rubber belt that responds to dressing
11. material reduction in belting "costs"

The unusual and practical design of Condor Compensated belts gives low tension operation with high overload capacity. Belt speeds up to 5000 f. p. m. over small pulleys are practical.

Ply stresses in Condor Compensated are equalized by virtue of its design. Fasteners hold 300 to 400% longer than in standard rubber belt. Water and moisture do not affect the efficient operation of this belt.

THE MANHATTAN RUBBER MFG. DIVISION

OF RAYBESTOS-MANHATTAN, INC.

EXECUTIVE OFFICES AND FACTORIES, PASSAIC, NEW JERSEY

UP COME THE FACTS *about*

VATROLITE

SODIUM HYDROSULPHITE

REG. U.S. PAT. OFF.

DYERS are bringing "pay-dirt" to the surface with their consistent application of VATROLITE in color reduction and stripping operations in the Vat.

VATROLITE stands for just what its name implies..plus purity, full strength and *perpetual* uniformity!

Better colors..quickened sales..repeat business . . all come through the precision methods of making this Royce-named Hydrosulphite.

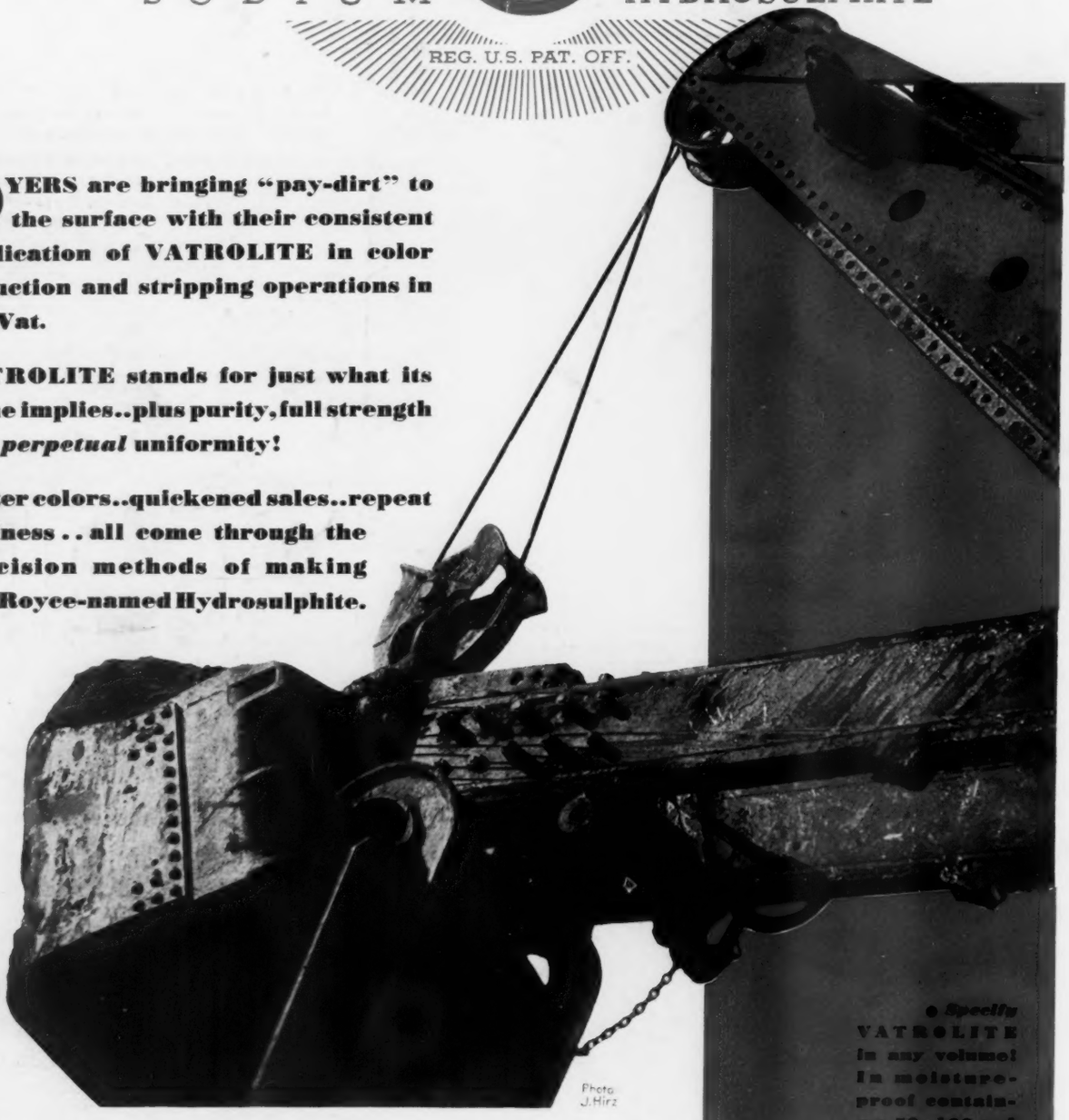

Photo J. Hirz

• *Specify* **VATROLITE in any volume! In moisture-proof containers 50—100 and 250 lb. weight.**

ROYCE CHEMICAL COMPANY

Manufacturing Chemists

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